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ADAM SMITH AND THE INDUSTRIAL REVOLUTION

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ADAM Smith indulges in history only in the short Book III and in some other chapters which have the character of lengthy digressions. But his whole work is pervaded by the intention to confront interests and opinions which have proved powerful in practice with the elementary principles which should regulate economic activities if their interrelation were rightly understood. He subjected history to examination at the forum of reason—and this he did by a wealth of individual example even outside the ostensibly historical chapters. He was neither the first nor the last to interpret history within a systematic framework of political and economic thought. Montesquieu had devised such an approach to social realities, and in the nineteenth century dialectical dogmatists refashioned the approach. But Adam Smith is one of the systematic thinkers who have imparted to society at large opinions on the course of history more persuasively than historians could ever do. In all such cases the empirical student of history is committed to two tasks. One is to see to what extent interpretations of history which have been extracted from the work of the author are really congenial to the synthesis which was in his mind. The other task relates to the formation of an authentic view of the thinker himself. What was his procedure in arranging the facts from which he derived his reading of history?

In both respects the discussion will be kept within closely defined limits. I shall only incidentally try to comment on the historical surveys inserted in the book. My main intention is to arrive at an adequate judgement on Adam Smith's attitude towards the two great changes in the destinies of his country which were under way while he was elaborating his argument. They both have, though from very different points of view, passed into history as revolutions—the Industrial Revolution and the American Revolution. For reasons which were borne out in the course of the nineteenth century, Adam Smith has been invested with a reputation for prophetic vision of the consequences of the two revolutions. As regards American independence this renown was based on passages to which the author himself gave a somewhat sensational prominence. At the very hour of the outbreak of hostilities he let his dissection of the 'Mercantile System' culminate in the statement that 'under the present system of management Great Britain derives nothing but loss from the dominion which she assumes over her colonies', and he accordingly declared 'parting in friendship' to be the most desirable solution of the conflict. In the closing paragraph of the book this recommendation took the form of a peremptory demand addressed to 'the rulers of Great Britain'. He added a further invective against the colonial connexion in the 'Conclusion of the Mercantile System' which he inserted for the third edition. He cherished the conviction that after a separation the commercial relations between Great Britain and her former colonies would develop to the advantage of both. The process of separation became, indeed, the reverse of the 'parting in friendship' to which he had looked forward. Seen in retrospect, however, history appears to have proved him right. When political relations had become normal British industry profited from trade with the United States.

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[1] The MSS. of this article was found among the papers of the late Professor Koebner, and we are grateful to Mrs Koebner for permission to print it here.

Regarding the other 'revolutionary' development, the rise of British industry under the influence of steady improvement in mechanized production and transport, no claim of visionary gifts could be based on Adam Smith's explicit views. There was not a line in his book anticipating such transformations as were to take place. If he was nevertheless thought to have been aware of future realities, he owed this renown to the same maxims of policy which underlay his recommendation to abandon the American colonies. This recommendation was or at least appeared to be derived from a principle underlying every one of his arguments—the principle that free competition, released from protective and restrictive policies, could alone secure the full benefits of labour and capital. This principle of free exchange was later advocated as being the corollary of the new industrial development; its recognition was assumed to allow society at large to reap the full benefits of enhanced and improved production made physically possible by the new technical achievements. Adam Smith was admired as the thinker who had provided theories which met the political wants of the new age. He seemed thereby to have given in advance his blessing to the productive energies of the age.

This was an artificial construction for which not a single line of his writing, if read in its context, could provide any evidence. More than that—apart from having no inkling of many technical innovations which lay ahead and of the forms of organization by which they were to be exploited—Adam Smith had been rather unfavourably disposed towards those elements of society who were to organise mechanised production and to divert it into the channels of commerce. 'Merchants and master-manufacturers' were again and again represented in his book as conspiring against the economic advantages due to society as a whole. Students of his argument must agree with the protest raised by Charles Rist in 1909: 'Nothing can be more incorrect, though it is frequently done, than to regard Smith as the prophet of industrialism'. The timeliness of this warning is indicated, however, by the fact that the most popular modern editions of the *Wealth of Nations* are provided with introductions which proclaim: 'Capitalist enterprise was in its first stage, and Adam Smith was its earliest interpreter', or Adam Smith was 'the philosopher of the capitalist revolution'.

Today such a misleading statement would not easily be repeated, and an attempt to determine Adam Smith's attitude towards the Industrial Revolution might appear to be question-begging. There is one sense, however, in which such an attempt relates to a real problem. The innovations in technique and in the organisation of business whose aggregate result has been called the Industrial Revolution had been matters of experiment, speculation, and public interest for many decades before they came to maturity and led to startling commercial effects. Adam Smith was able to pay attention to these enterprises during the years 1767 to 1775, when he elaborated his original argument. Some years after, when he undertook to enlarge it for the third edition of the book, he was in a position to take account not only of new inventions, but also of the increasing application of modern machinery to practical uses, as witnessed by new spinning mills and by the results of the collaboration of Boulton and Watt in Birmingham.

However, a modern reader will not easily find references to such developments in the *Wealth of Nations*. The passages which could be taken as testifying to Smith's interest in recent technical progress are very sparse and rarely explicit. The hints, if there are any, are very casual, and betray none of that eagerness to be exactly informed on the most various aspects of contemporary economic life which he shows in his expositions of money transactions, labour conditions, soil conservation, and the corn trade. Adam Smith's ability to balance abstract analysis by graphic example, which gives his book its lasting literary value, was of vital importance to his scientific achievement: he saw the necessity of having logical evidence confirmed by everyday experience. He was careful in discerning what practical example would best fit a certain doctrinal statement. His choice of the 'trifling manufacture' of the 'pin-makers trade' for illustrating the division of labour has rightly been found appropriate in view of the simple appliances employed in this manufacture.[1] There was no need for him in this argument to resort to the ironmasters, the cotton-spinners, the canal-builders. But one wonders, why these and other innovating activities did not find any other place in his long-drawn argument.

One possible answer is, of course, that his systematic search for principles of economic behaviour did not impose on him the obligation of offering opinions on individual contemporary experiments. To concede this is, however, not to dispose of the question why did not any of these new features stimulate his thought. He need not have described them; yet they could have animated his theoretical outlook. If they failed to have such effect this must be thought to be characteristic of the workings of his mind. Such an omission makes it the more remarkable that he should have found a place in his systematic argument for another complex of contemporary events—the conflict between Great Britain and the American Colonies. It stands to reason that the passages in question were written under the impact of the approaching danger of war. But the conflict between Great Britain and the American rebels was roused by conflict of views on constitutional rights and not by divided opinions on economic wisdom. Therefore, whatever the issue meant to Adam Smith as a patriot, its passionate discussion was not, it might appear, a necessary part of his economic argument. This point also demands closer inspection. Was Adam Smith's course of thought in fact spontaneously directed towards the harsh comments, by which he made his name for ever connected with the memories of the American Revolution? Or did he not, on this point, allow his argument to be thrown out of gear by the burning question of the day?

We have, it appears, to deal with two instances in which the progress of contemporary history lay outside the original pattern of Adam Smith's scientific thought. In one case, that of technical and industrial development, we find the *Wealth of Nations* conspicuously little influenced by contemporary events. In the other case, that of the American question, the impact of events was out of proportion to the general intentions of the book. We shall examine the structure of the argument under both heads.

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[1] T. S. Ashton, *An Economic History of England: The 18th Century*, p. 103. Shortly before Adam Smith made this trade famous by choosing it as his point of departure the division of labour had on a larger scale impressed its significance on the Earl of Shelburne when he visited Birmingham and saw how manufacturers there subdivided the operation to finish a button into as many different tasks as possible.' See his diary entry quoted by W. H. B. Court, *The Rise of the Midland Industries* (Oxford, 1938), p. 240.

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Adam Smith's attitude to the early stages of the Industrial Revolution can be adequately interpreted only if we banish from our thought most of what is commonly implied in this historical concept. He could not possibly have foreseen the quantitative effect of those inventions which had already been made when he finished his book in its first or even in its third edition—those of the Darbys, Wilkinson, Huntsman, Kay, Hargreaves, Arkwright, Crompton, James Watt. One of the most important of the inventions, Cort's puddling process, was put into practice only when the third edition had just been published. Professor Ashton has with good reason decided on approximately the same date (1782) as the beginning of the time when 'a sudden quickening of the pace of output' gave substance to the image of a 'revolutionary' process.[1] Contemporaries were slow to believe in such a decisive change even in the next two decades. In 1787 a critic of the 'Eden Treaty' with France passionately warned against overestimating 'the particular state of those branches in which we positively possess an unmatched superiority over the French'. 'Cottons, hardware, pottery, gauze, sadlery' were, he conceded, 'great national objects indeed; yet great as they are, it is almost unnecessary to say, that compared with all the other manufactures of the kingdom, they become trifling'. Moreover it was a weak point in the British 'pre-eminence' in these articles that it 'resulted from tools and machines, the knowledge of which was capable of being conveyed away'. The master-manufacturers who now profited from new inventions could scarcely prevent their own workmen from communicating their secrets abroad. The author declared himself appalled by the speculation which had taken place in cotton. 'A speculation proves nothing'. The few 'wealthy traders' who now advocated the treaty with France on behalf of the cotton export were suspect of enticing the British public into one of 'those monstrous, though popular bubbles' which were exemplified by the notorious schemes of the South-Sea and of John Law. Though the probability that 'France must speedily outstrip Great Britain in the cotton manufacture' is the main scare of this writer, his warnings imply the assumption that the new achievements in spinning and other inventions are incidental episodes rather than successes characteristic of a continuous progress in the transformation of industry.[2]

It was not easy, even for an impartially interested observer, to decide on the relative importance of the innovations whose increase in the last two decades of the century was spectacularly demonstrated by patents taken out yearly.[3] To the second edition of A. Anderson's *Origin of Commerce* an Appendix was added which claimed to give an account of inventions made and put to use in Britain between the original edition of 1762 and the later 1780's. The survey has high praise for the 'immense trade' to which Josiah Wedgwood's various pottery creations has given rise, and calls the invention of 'Mr. Arkwright's celebrated machine . . . an event which portended a considerable revolution in the manufactures of Great Britain'.[1] On the whole, however, the list represents an arbitrary and undigested selection; one would in it seek in vain for the great metallurgists and for James Watt.

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[1] Ashton, *op. cit.* p. 125.

[2] *A View of the Treaty of Commerce with France: signed at Versailles, Septr. 20, 1786 by Mr Eden*, pp. 19, 21 seq. 31. About the same time, indeed, Lord Sheffield expressed the confidence that success in the latest invention would give to Great Britain the iron trade of the world. W. H. B. Court, *op. cit.* p. 157.

[3] Ashton, *op. cit.* p. 107.

Still in 1797 Sir Frederick Eden could in his *State of the Poor* express regret that 'the progress of the mechanical arts is much slower than that of commerce'. Though being of course familiar with the name of Arkwright he thought it still characteristic that a long period had passed between the time when 'we had . . . known and reaped the benefit of the silk-manufactures of Italy' and the time when 'the machines for fabricating them were made, or even known in England'. He made 'the monopolizing spirit of commercial nations' responsible for the slow pace of industrial progress, but thought the manufacturers of his own country victims rather than instigators of the spirit. They could, he assumed, have profited much from imitating innovations made abroad and, at the same time thought them too little interested in availing themselves of 'mechanical contrivances and ingenious expedients' which could be learned on the continent of Europe or even in India, 'that part of Asia which constitutes, perhaps, the fairest portion of the British empire'. He expected the East to become what it had been once, 'the mother of the arts'.[2]

This certainly was a preposterously inadequate assessment of recent developments. If, however, a diligent student of economic conditions in England could form such a diffident opinion in 1797, is it fair to demand that Adam Smith should have shown more foresight 25 years earlier?

Such foresight on Adam Smith's part would not have been wholly alien to the man or his times; it would have accorded with the special bent of his mind, of which the innovators themselves and also some contemporary observers were certainly possessed. Any interest that he could have taken in the technical progress which had in his time either been achieved or pursued would have followed from his interest in the contribution which the energies of single individuals or groups of individuals could make to the well-being of society. There are notable instances of such interest manifested by persons who had no hand in those new technological activities and had nothing to gain from their success. The Society for the Encouragement of Arts, Manufactures and Commerce had been founded for the purpose of bringing talents of invention to the fore. Adam Anderson, the annalist of British commerce, had thought so highly of this Society that he expected honour from dedicating his book to it. Among contemporary writers who gave attention to the industrial towns of the Midlands and the North as nurseries of technical ingenuity there was Josiah Tucker whose ideas of sane economics sometimes resembled those of Adam Smith. His *Instructions for Travellers* written in 1757 started from an assumption diametrically opposed to that of Sir Frederick Eden forty years later. A traveller adequately prepared for studying institutions and business practices abroad would have to state that 'few Countries are equal, perhaps none excel the English in the Numbers and Contrivance of their Machines to abridge Labour'. Without knowing as yet of the most important experiments in metallurgy and textiles he gave examples of mechanical contrivances which he took as being of high promise for the future. 'Yet all these, curious as they may seem are little more than preparations or introductions for further operations'. Then follows the assertion already heard before 'that at Birmingham, Wolverhampton, Sheffield, and other Manufacturing Places, almost every Master Manufacturer hath a new Invention of his own, and is daily improving on those of others'. 'Examples are endless', he assures us.[1] In 1769 Edmund Burke, though confessing that he was 'not able to get at all the details of our manufactures', collected instances of the energies recently displayed in them; he wished to rebuke the assertion of a friend of the odious George Grenville that they were in decay. He praised 'the spirited, inventive and enterprising traders of Manchester' and he laid special stress on the recent establishment of metallurgy in Scotland. Had the pamphleteer, he asked, 'not heard of the iron works of such magnitude even in their cradle which are set up on the Carron, and which at the same time have drawn nothing from Sheffield, Birmingham, or Wolverhampton?' [2]

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[1] Pp. 698–700, 705 seq.

[2] Vol. I, 493 seq.

Adam Smith was in fact well informed about the Carron works; they maintained a warehouse in Kirkcaldy where he wrote his book.[3] And in 1774 when he, now sojourning in London, revised his book for publication, he could read how Tucker combined his own sceptical view of colonial trade with a high appreciation of the technical achievements made in the last decades. Among the 'real causes of that amazing increase' of trade, which could not be doubted, there were in the Dean's opinion 'the improvements in various engines with new inventions and discoveries for the abridgment of labour—better communications established throughout the kingdom—happy discoveries and improvements in agriculture and the mechanic arts—larger capitals than usual employed both in husbandry and manufactures'.[4]

This enumeration may fittingly be compared with the manner in which some of these subjects are treated in the *Wealth of Nations*. A passage, which somewhat converges upon Tucker's assertion is the paragraph in Book II, Chapter 2, which emphasizes the productive function of 'expense laid out upon a fixed capital of any kind'. Such expenses are exemplified by 'improvements in mechanics', and these improvements are supposed to consist in providing 'cheaper and simpler machinery than had been usual before'. The profit resulting from this reduction of costs will be 'naturally' employed 'in purchasing an additional quantity of materials to be wrought up by an additional number of workmen'. Such improvements, Adam Smith says 'are always regarded as advantageous to every society'. 'The undertaker of some great manufactury' who applies them will have the merit that 'the quantity of that work, which his machinery was useful only for performing, will naturally be augmented, and with it all the advantage and conveniency which the society can derive from that work'. Professor Ashton has drawn attention to instances in which technical innovations had exactly the effect emphasized here—the effect of 'liberating capital'. These instances, however, are taken from improvements which could be applied only some time after that paragraph was written. They concern the replacement of hydraulic work by the steam engine, of copper, brass, stone, brick and timber by iron, and the use of wrought iron in particular. It is very questionable whether the 'great manufactories' of whose recent emergence Adam Smith could have knowledge when writing those sentences, the iron works, spinneries and potteries exemplified the kind of higher productivity which results from cheaper machinery. Moreover, he does not give us to understand that he was referring to recent achievements of English 'undertakers'. He speaks of an experience of long standing made everywhere—of improvements 'always regarded as advantageous to *every* society'. Instead of reminding the English reader of what he could witness in his own country he deflects his attention from it.

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[1] *Economic and Political Writings*, ed. R. A. Schuyler (New York, 1931), pp. 240, 42; cf. Ashton, *op. cit.* p. 104 for literal analogies some years earlier.

[2] 'Observations on . . . The Present State of the Nation'. *Works*.

[3] Henry Hamilton, *The Industrial Revolution in Scotland* (1932), p. 157.

[4] *The True Interest of Great-Britain set forth in Regard to the Colonies* (1774). Schuyler, *Op. cit.* p. 364.

This attitude is still more pronounced later when he summarily states that 'the productive powers of the same number of labourers' can only be increased by the investment of additional capital. Here he mentions 'some addition and improvement to those machines and instruments which facilitate and abridge labour' as a main intention of such investment. Hereby he might appear to have recent practices in mind. But he does not say so—and he again embodies his reflections in an argument on whose generalized character he lays much stress. He says that whenever 'a nation' has witnessed an increase of 'the annual produce of its land and labour' over a long period this benefit must be attributed to an increase of its capital of which the improvement of 'machinery' has just been given as one of the possible reasons. But we shall find this to have been the case of almost all nations, in all quiet and peaceable times, 'even of those who have not enjoyed the most prudent and parsimonious governments'. So a flavour of 'modernity' and specifically English experience is again carefully avoided. And just on this occasion Adam Smith emphasizes the 'gradual character' of all progress resulting from such achievements.[1]

The *Wealth of Nations*, indeed, contains one paragraph which explicitly diverts attention from 'gradual' developments in industry to the sensational successes of recent date. But in this case, however, the attitude of the author is strikingly grudging. The subject is brought up in connexion with the rise of wages which is to be expected 'when a projector attempts to establish a new manufacture'. Here the concept of a 'new' manufacture gives occasion to some comments. Adam Smith relates it more particularly to 'manufactures for which the demand arises altogether from fashion and fancy', as opposed to those 'for which the demand arises chiefly from use or necessity'. In these more useful branches 'the same form or fabric may continue in demand for whole centuries together'. We learn that 'Birmingham deals chiefly in manufactures of the former kind, Sheffield in those of the latter'. So Birmingham has—for the third edition too—remained the town of 'toys' to Adam Smith. Some more general remarks are added. New manufactures are, together with new branches of commerce and new practices in agriculture, classed as 'speculations' on which 'projectors' embark. They originate from the expectation of 'extraordinary profits'. These expectations sometimes prove justified; but 'sometimes, more frequently perhaps' the result is 'quite otherwise'. When the enterprise has been successful, moreover, it gives rise to competition; 'the trade or practice becomes thoroughly established and well known'. Profits will consequently be reduced 'to the level of other trades'.

These sentences represent all that Adam Smith had to say on the working of the enterprising spirit which animated so notable an element in the society which surrounded him. They all came under the description of speculating projectors, and the occasion was used for warning the public against placing confidence in their lasting success.

However, little prominence is given to this estimate. Like the generalising aphorisms on mechanical improvements occurring in the chapter on the accumulation of capital, it forms a passing episode in an argument which soon turns to other problems.[1] The topic of 'new manufactures' and new techniques is conspicuous for its absence in the one chapter which could have given the author ample opportunity for dealing with the daring and the thriving 'projectors' of the present age, i.e. Book II, Chapter 5, 'Of the different Employment of Capitals'. In this section Smith could have raised the question of the sources from which the capital of new industrial activities was derived. The generalization just mentioned took it for granted that capital was accumulated out of the profits of the establishment which was now to use it for improvements. Contemporary experience, however, as exemplified by the Carron works, showed the importance of financial support from capital owners who took no part in the management. The same Carron works could have given occasion for showing how mechanical improvement of high promise was nevertheless bound up with a lengthy process of trial and error eating up much of the means invested[2]. Such experiments, precarious indeed, but enlivened by well-founded confidence in their final results should certainly not have been dismissed as 'speculations'.

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[1] I, 252, 307. Ashton, *op. cit.* 110 seq.

Evidently the whole topic of 'new' ventures was not given its due by Adam Smith. His attitude towards his most enterprising countrymen would not have been as negligent as we have seen it to be, had he been prepared to divert his inquisitive mind to the question how it came about that the personal initiative of technical talent had proved, and was going on to prove, an economic asset for society at large. As it was, he contented himself with leaving this process to the common urge of self-interest and the wholesome practice of competition. Had he tried to go deeper he could not have failed to see that his contemporaries were showing that process to be conditioned by the cooperation of various gifts and interests converging upon a well-defined aim. He would have noticed how the challenge to overcome frustrations in workmanship, raw materials, implements and labourers, had become an incitement to the inventive genius on the one hand and to the business spirit on the other. He would also have seen that these gifts and, in addition, the means for bringing them into effect were not necessarily located in one and the same person. He would have seen the productive effect of joint enterprise, just as he saw that of the division of labour.

He could, moreover, have observed that the need of improvement which could be met only by particular technical skill was in important cases felt and understood by the public at large, before engineers and capital owners joined hands for its satisfaction—and that these were the very cases in which the entrepreneurs could scarcely look forward to quick and spectacularly high profits. The demands for the use of coal in metallurgy and for an improved steam-engine were cases in question, though the range of their applications could not be visualized as yet. There was one instance of a multifarious requirement which had called for technical remedy and obtained it to a great extent before Adam Smith finished his book. This instance concerned transport, not manufactures; it was the building of canals. The treatment assigned by Smith to canals was exceedingly remote from the immediate interests of his countrymen. 'Navigable canals' come up for discussion, together with 'good roads, bridges, harbours etc', in a sub-section of the chapter on 'the Expenses of the Sovereign or Commonwealth' which deals with 'the Public Works and Institutions ... necessary for facilitating Commerce in general' (Book V,

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[1] I, p. 103. Book I, Ch. 10. 'Of Wages and Profit in the different Employments of Labour and Stock. Part I, Inequalities arising from the Nature of the Employments themselves'.

[2] Cf. Hamilton, *op. cit.* pp. 155–160; T. S. Ashton, *Iron and Steel in the Industrial Revolution* (2nd ed. 1951), pp. 43–46, 47, 62; Ashton, *Economic History*, pp. 100, 105.

Chapter 1, part 3, art. 1). The only question relating to them is, that is to say, whether their expenses and the tolls to be collected for their maintenance should be the responsibility of the public revenue or that of private trustees. This problem makes the turnpikes of Great Britain a matter of special concern to the author, but the English canals remain out of sight. The only waterway in Europe which appears worth mentioning is the canal of Languedoc.

In one paragraph, indeed, a reference is made to some particular inventions which came in time to satisfy a widespread want of the public. These inventions were, however, of very long standing; the occasion to speak of them occurs only in a digression inserted in the chapter on 'the Rent of Land' (Book I, Ch. 11). Here Adam Smith ventures the observation that the real price of the 'coarse and fine woollen manufacture' must have become lower because of 'three capital improvements'—the spinning-wheel, 'several very ingenious machines' for winding the yarn and adjusting the warp and woof, and finally the fulling mill. This passage makes it even more remarkable that Adam Smith did not see any reason why he should also ponder upon the effects, whether actual or potential, of the flying-shuttle, the jenny and the water-frame. He saw no reason for diverting thought to these and other innovations of his time.

Ignorance of events in British industrial life which had a stirring effect on business would be the last deficiency of which we could find him guilty. If he did not let them enter his argument the reason was that his argument had no use for them. He did not, that is to say, attribute decisive importance to the contribution which the men whom he called 'projectors' could make to the process on whose understanding his central interest was fixed—the increase of 'the annual produce of land and labour'. That the increase benefited from steady attention given to the possibilities of technical improvement he could and would not deny. He did not, however, trouble himself with the question whether the emergence of innovators was always a matter of accident or whether a widespread need of innovations could assist it in becoming a social phenomenon. If he had been faced with the question as to how inventions occurred, he would probably have found much truth in the article *Inventions* of the French *Encyclopédie* which with special reference to useful inventions of the thirteenth and fourteenth centuries assumed that *elles furent le fruit de cet instinct de méchanique que la nature donne à certains hommes.* The additional remark *indépendamment de la philosophie* would have been too trivial for him; but he would have given wholehearted assent to a further assertion made by the article concerning the history of inventions. *Toutes cettes choses ont été découvertes grossièrement, ou par parties, et ont été amenées insensiblement à une plus grande perfection.* Of those 'three capital improvements in the woollen manufacture' which he assumed to have had great influence, it was true that they had entered the field 'insensibly'. They were of uncertain date; they were anonymous and they had made headway nevertheless. These qualities could not be claimed by modern 'projectors'.

But recent English experience provided ample reason for revising this assumption. For in his time the technical effort which sometimes led to the discovery of new forms of machinery and of handling raw material was in league with business interest. We have seen Adam Smith missing this point. How shall we explain this deficiency? It is relevant to remember here that Adam Smith did not have a good opinion of the motives by which business men were governed. One is reminded of his distrust in the 'order of those who live by profit', the 'merchants and master manufacturers'. 'The interest of the dealers', he stated tersely, 'in any particular branch of trade or manufactures, is always in some respects different from, and even opposite to, that of the public'. This utterance, however, does not wholly explain his personal attitude towards all those industrial enterprises which came to his knowledge. His abstention from comment on these activities—apart from those occasioned only by 'fashion and fancy'—has, in fact, something to do with his general opinion on master manufacturers, but the connexion is only an indirect one. As regards the employment of capital he made his doctrinal preferences completely clear. They were arranged in a gradation. The first place belonged to the capital employed in agriculture. In proportion to the quantity of productive labour which it employed, it added in his opinion the greatest value to the annual produce. Next to agriculture, the capital employed in manufactures put into motion the greatest quantity of productive labour. The third place was due to the capital employed in the home trade; for every one of its operations replaced 'two distinct capitals that had both been employed in the agriculture or manufactures of that country'. This advantage is naturally denied to the fourth category of investments—employment in 'the foreign trade of consumption'. And from the point of view of the country as a whole the usefulness of capital employed in this way diminishes in proportion to the length of time it takes to realize its returns. Two circumstances can delay this realization of profits. The market of destination may be situated at too great a distance. Besides, the commodity exported may have to be exchanged for another which in its turn must be sold in a third country. This is what Adam Smith called the roundabout trade. He concedes that for Holland and to some degree for England roundabout trade had become a necessity. Nevertheless on principle foreign trade of such description must stand rather low in the gradation of investments. Only one employment must be placed still lower; this is the carrying trade which only replaces foreign capital.

If, with this gradation in mind, we revert to the technical innovations, we have reason to assume that they ought to have earned rather high marks in the author's appreciation of investment. For what he could see of them showed them to be beneficial for the home market, and, as in the case of the canals, even for agriculture. His sceptical attitude towards master-manufacturers and projectors need not apply to them. Adam Smith, however, saw no reason to labour this point. For in the progress of his argument, this gradation served different, and to him more important purposes—a historical and a political purpose. It is placed at the end of the second book to give substance to the inquiries which fill the next two. To use his own words the problem is to show the reasons why in Europe generally and also in England, 'private persons frequently find it more for their advantage to employ their capitals in the most distant carrying trades of Asia and America than in the improvement and cultivation of the most fertile fields in their own neighbourhood'.

We need at this place only recall the comprehensive outlines of the historical argument displayed in Books III and IV. It presents two stages of a development which has made the policy of Europe militate against the natural order. After the breakdown of the Roman Empire the productive forces of Europe were for centuries kept down by anarchy. A wholesome development was made possible only by the rise of the towns and the protection granted to them by the governments. It was, in the last resort, owing to their existence, that the lords of the countryside found it worthwhile letting agriculture develop in peace. For this service however, the dominant elements of the towns, the merchants and manufacturers ensured that they were paid to the greatest possible extent. They induced the governments and the landlords to allow and finally to establish arrangements of production and trade which guaranteed their income and gave opportunities for high individual profits. These were restrictions on competition at home and the still more important regulations for excluding competition from abroad which taken together constitute the 'Mercantile System'.

To expose this system became the practical aim of Adam Smith's book. He shows it to be responsible for the fact that the annual produce of land and labour in England as well as in other European countries had so far fallen short of its potentialities. Not only agriculture but also manufactures and trade were, by the artificial conditions implied in that system, prevented from obtaining the returns which would naturally accrue to them if capital and labour could move freely. Under the prevailing conditions capitals were on the whole seeking such employments as enjoyed a premium owing to the legal preferences granted to them. This unsound distribution of economic energies had been established and was continuously fostered by one class, the merchants and master-manufacturers. Therefore the whole endeavour of economic thought ought to be directed to the one aim of making this class abandon its privileges.

The reader of the *Wealth of Nations* is not allowed to lose sight of this one obstacle to economic progress—the narrow-minded selfishness of the merchants and manufacturers. Adam Smith may have been privately willing enough to allow for individual exceptions from their condemnation. Had he been asked what fault he could find with capitalists who promoted technical progress he might not have insisted on inculpating them. But he might have stated that these innovating businessmen were too small a minority to be allowed to influence the verdict which he pronounced against the class as a whole.

Such a statement could not even have been gainsaid. In the business world at large the interest in monopoly was certainly more prominent than that in inventions. To concede this is, however, not to minimize the fact that Adam Smith made no attempt to take the measure of the urge for technical improvement with which the same society was pervaded to a noticeable extent. This neglect meant, we have seen, a gap in his otherwise very serious endeavour to make practical observation serve his systematic thought. And this failure was conditioned by the conception of economic history which underlay his argument. He envisaged the economic framework of his own time as having been determined by what he called himself 'a revolution of the greatest importance to the public happiness'. This was the process of internal pacification in whose course the towns and their industry and trade had brought the 'policy of Europe' under their sway. From this revolution the Mercantile System had emerged. He looked forward to an enlightenment of the public mind which would operate for the abandonment or at least, the weakening of this system. Between the revolution of public order which had happened in the past and that revolution of economic wisdom which was to be prepared for the future there was no room for any development which could be thought a revolution in the structure of industry.

HERIOTS AND PRICES ON WINCHESTER MANORS

By M. M. POSTAN and J. TITOW

I

The present essay is the product of a co-operative enterprise. Several years ago, while working on the records of the Bishops' of Winchester estates, one of the authors, Mr Postan, was struck by the apparent fluctuations in the numbers of recorded heriots. Several possible explanations occurred to him then, including of course variations in harvests. Such evidence of crops as he then collected appeared to support that hypothesis and to suggest a striking parallel with some well-known trends abroad.[1] He nevertheless decided not to pursue the enquiry until he or somebody else had been able to investigate the history of the Winchester estates in greater detail. Subsequently, he noticed similar fluctuations on some other estates, especially on those of Glastonbury.[2] When, two years ago, Mr Titow, a research student in the University of Cambridge, embarked on the history of the Winchester estates in the thirteenth century, Mr Postan suggested to him that an enquiry into heriots might be one of his tasks. Mr Titow accordingly extracted from the Winchester bailiff's accounts of five manors all the evidence of heriots and prices, and the present essay is the result of his and Mr Postan's combined efforts to deal with the evidence thus assembled.

The division of labour has been as follows. The main table (Table I) and the graphs are the work of Mr Titow, although the eventual shape of both is the result of protracted consultations between the authors. The text of the essay itself is the work of Mr Postan, who bears the entire responsibility for the way in which the argument has been presented. Mr Titow, however, was consulted at every stage in composition and helped to elucidate a number of problems, especially those arising out of the Waltham surveys.

In the concluding stages of the work a third participant joined the enterprise. As the enquiry and the writing of the essay involved Mr Postan in complicated statistical and demographical argument, he had to draw heavily upon the assistance of Mr Longden, a statistician with the Faculty of Economics in Cambridge. Mr Longden has tested the reliability and the relevance of the data, has calculated the correlations between heriots and prices and subjected the final draft of the essay to statistical criticism, as a result of which several sections of the essay have been modified. In addition Mr Longden has compiled tables of correlations of heriots and prices, of expectations of life, and of grain prices. These tables, and notes on their contents and significance, are published here under Mr Longden's own name.

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[1] The most obvious foreign parallel was that of Swedish death rates in the eighteenth century, as summarized in G. Sundbärg's *Bevolkerungsstatistik Schwedens, 1750–1900* (Stockholm, 1907), and commented on in E. Heckscher's article on the same subject in this *Review*, 2nd ser. II (1950), 'Swedish Population Trends before the Industrial Revolution'.

[2] These and some other demographic data of Glastonbury estates will be discussed elsewhere.

II

References to heriots i.e. death duties levied on holdings of customary tenants will be found in large numbers in all the bailiffs' accounts of the Bishops' of Winchester manors. This evidence, needless to say, is beset with obvious pitfalls. In the first place the entries in our accounts do not apparently provide a complete record of the deaths among tenants liable to heriot. The accounts of some manors record only the heriots paid by delivery of animals and do not record heriots in the form of small money payments levied on holdings too small to deliver animals. This omission does not of course mean that on these manors all the customary holders possessed animals, but that for some reason or another small-holdings were not subjected to death duties. However at some time in the middle of the thirteenth century the authorities of a number of manors began to levy money payments, usually sixpence but sometimes as much as one shilling, on property of deceased small-holders and on certain transactions between living persons involving small parcels of land. In the accounts of the fifties and sixties these money heriots are still few, but on at least five of these manors—Taunton, Meon, Waltham, Wargrave and Fareham—they become well-established, possibly by 1255, and certainly by 1270.[1] We therefore propose to confine our study to these manors.

The evidence of heriots raises a number of questions which must be answered before it can be used for the study of mortality on the Bishop's of Winchester estates. Do they record all the deaths in that section of the manorial population to which they relate? Do they record deaths only, or also other changes within the group?

The answer to the first question is obviously in the negative. It is easy enough to discover the group of persons to whom the evidence relates. The manorial tenants liable to the payment of heriots were the Bishop's customary tenants, a group which, as we shall soon see, is not very difficult to define or to measure. Within that group, however, by no means all the deaths left behind evidence of heriot payment. Heriots were levied not on persons but on holdings; they were not a personal tax but an estate duty. They were, therefore, payable only by heads of households and can be used only as evidence for the mortality of adults. Unfortunately it is difficult to determine the precise age groups to which the term 'adult' should apply. The manorial custom in general and that of the Winchester estates in particular did not appear to lay down a hard and fast age qualification for accession to property. Minors could succeed, though in all the records of court fines and litigations available to us we have encountered clear evidence of minors in legal possession of customary holdings only in isolated cases, except in the year of the Black Death, when, in the absence of adult heirs, children frequently succeeded to the holdings of the parents or relatives.[2] But, even if, contrary to our impressions, minors acquired legal title to customary holdings, the likelihood of their figuring among customary holders in proportions anywhere near their proportion in the population is very remote. We must therefore assume that the overwhelming bulk of villagers succeeding to customary land were adults.

However, our uncertainties on this point do not end here. The term 'adults' is used here in the general sense of 'grown up' and does not imply that 'adult' holders of customary land were all legally 'of age' i.e. older than twenty. All we can assume is that in general the group contained very few children or very young persons and no, or almost no, infants, but we cannot be absolutely certain that it did not include men and women in their 'teens.

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[1] See below p. 401.

[2] See below p. 408.

Our answer to the first question thus is that the evidence of heriots excludes the deaths of infants and children but may include a few instances of deaths among boys and girls in their 'teens. The bulk of the evidence relates to male adults and is therefore comparable, not with general mortality of other periods and societies, but only with that of their adult populations.

The answer to the second question, i.e. whether heriots included transactions *inter vivos*, can be formulated more definitely, but the formulation requires a close and a somewhat delicate analysis of the evidence. In general there is no doubt that by definition and in actual operation the heriot was a death duty pure and simple, and that the overwhelming proportion of heriots recorded in our documents were levied on holdings of deceased tenants. There is certainly no reason for doubting that whenever animals were taken in payment of heriots the tenants must have died some time previously. Such accidental information about these cases as our records contain, leaves us little doubt on this point. But we have seen that not all heriots took the form of delivery of animals. Some of the heriots were paid in money, and very occasionally in goods, and although many of these heriots were collected from holdings of deceased men (presumably men too poor to possess a taxable animal), some were apparently paid by men selling portions of their holdings. The payments of heriot were in these cases additional to the entry fines payable by the buyers of land.

This complication may appear to invalidate the evidence of money heriots and reduce our sample to the tenancies charged with animal heriots, i.e. to the more substantial holdings. Fortunately a closer attention to the circumstances in which money heriots were levied may dissipate some of the difficulties which they at first sight appear to raise. In the first place the money heriots payable on transfers of property *inter vivos* appear to be connected with the tenants' deaths, even though the connexion is not immediate. That some connexion must have existed is suggested by the curious incidence of money heriots. The collateral evidence of the Bishop's entry fines in the manorial courts makes it quite clear that in the great majority of land transfers the only payment exacted by the lord was the entry fine payable by the buyer. Why then should the lord have imposed additional payment of heriots on some transfers and not on others?

We believe that the answer to this question will be found in the ages of the sellers. In a great majority of cases in which money heriots are levied on transfers of property, the sellers appear to be advanced in years and could presumably be expected to die within a few years of the transactions. What probably happened was that when the seller was an old or elderly man the lord refused to allow him to sell the holdings except on the payment of a heriot. This practice was obviously adopted in order to prevent the avoidance of heriots by previous transfers of property to younger men, and is therefore comparable to the rules which the Inland Revenue apply to gifts *inter vivos* in our own day.

If this explanation is correct we should expect the lords to allow their tenants to sell land without heriots while they were still young and to impose heriots as they were getting older. Numerous examples of this discrimination between younger and older sellers of land will be found on all our manors, more especially on manors like Waltham, for which we happen to possess both accounts and custumals.[1] Thus we find Henry Marshall, a substantial tenant holding several pieces of land in Waltham in the 1320's selling some of his land apparently for the first time in 1325. At that date he probably was not older than 35, for his father, Galfridus le Marshall, married in 1289 the woman whom the records later describe as Henry Marshall's mother. This first sale, transacted while he was still in his prime, is not accompanied by a heriot, but in 1338, i.e. thirteen years after his first recorded transaction when Marshall was probably in his late forties, he is recorded as paying a heriot of one shilling on two acres of land sold to another man. We find him paying two further money heriots on similar sales in 1339 and 1340. He must have died soon after the last payment of a money heriot, for in 1342 his wife held his land as a widow. An even clearer case is that of another Waltham tenant, Richard Ude.[2]

That these cases were typical is shown by the low expectations of life of the men recorded as paying heriot on the sales of their land. The death rates on the five manors, as measured by heriots, suggest that the expectations of life of the substantial tenants, i.e. the intervals between their accession at 20 and their death, should have varied from about 24 at the beginning of our period to just under 20 in the period following 1292.[3] The figures, based as they are on uncertain guesses as to the average age of accession to property, are bound to be inexact; yet their inexactitude is not so great as to obliterate the wide difference between these figures and the actual expectations of life of the man who paid money heriots at their first payment. Their average expectation of life on the manor of Waltham, i.e. the average intervals between the first payment of heriot and actual year of death, would be five years. This average is so low because in fact, 25 out of 36 heriot-paying sellers of land died less than five years after their earliest payments of heriot, and only five, i.e. 15 per cent, died more than seven years after the first payment.

But for a few questionable cases, the interval between the first money heriot and the date of death, i.e. the expectations of life of heriot-paying sellers, would have been even shorter than that estimated here. Some of the 'questionable' cases appear to be those of men who happened to survive to ripe old age. Even in the Middle Ages some men lived very much longer than most, and some survived to the Methusalean age of eighty and over. Thus when we are shown Thomas Schogell of Waltham paying heriot in 1339 for a part of his holding transferred to his son, but do not find a clear reference to his death until nearly ten years later, i.e. 1349, we must not forget he was already an established tenant in 1332 when the Waltham survey was compiled and was then already old enough to set up a grown-up daughter on a holding of her own. At that time, though father of a grown-up daughter, he was still not deemed old enough to pay heriot on the transfer, but when several years later he made a similar transfer to his son a heriot was levied.[4] Similarly, Richard Ude, whose case we have already cited, died in 1349, i.e. full seven years after the date on which the money heriot was levied on the land he sold. But there is every reason for believing that at this time he was an old man, perhaps a very old man. Not only were his heirs in 1349 his grandchildren, but his holding listed in extent in 1332 contained eleven separate pieces of which at least four he had himself purchased some time before 1332.[1] He must therefore have been an established tenant many years before 1332. Similarly, Lora atte Wynde and Constance Colsweyn who paid heriots while still alive, were old enough to have married daughters at the time of the first payment. Christina atte Hassele, who paid heriot in 1328 for a portion of her land but may still have been active in 1339, was at the time of her first heriot payment a widow with a grown-up son.[2] In all these cases sellers of land apparently lived beyond the spell of life allotted to them both in our demographic schedule of expectations of life and in the workaday expectations of manorial administrators. All these were men and women who happened to live longer than most; their longevity does not therefore belie the general impression that the heriots were levied as a precaution against the evasion of death duties on sales of land by tenants of advanced years.

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[1] Waltham happens to be one of the very few Winchester manors to have been surveyed both in the middle of the thirteenth century and in the early fourteenth. MS. Eccl. Com. Various, 159512, 1/9: B. M. MSS. Egerton 2418.

[2] Eccl. Com. 2/159311, 1594581/2, 159332, 159337, 159451, 159349, 159350, 159352, 159358. Waltham Rental: Eccl. Com. Various, 159512, 1/9.

[3] See below, Mr Longden's table and notes on Expectations of Life.

[4] P.R.O. Eccl. 2/159344 (grown-up daughter on a holding of her own in 1332); 159349 (first heriot in 1339); 159358 (animal heriot and death in 1349); also Waltham Rental, P.R.O. Eccl. Com. Various 159512, 1/9.

Moreover, in many of the questionable cases, in which long intervals separated the first payment of money heriot from the date of death, we cannot be certain that the person who paid the heriot did not in fact die earlier than our records indicate. For it so happens that the fog which surrounds the identities of some of the holders is so composed and distributed as to magnify the apparent length of the period of the payment of the heriot *inter vivos* and the death of the seller. In many, perhaps in most of the instances in which we have had to presume that the seller was alive for several years after he had paid heriot on his sale, this presumption is based wholly on the evidence of personal names. When a reference to a John Smith paying heriot in one year is followed by a reference to a John Smith paying a fine or a heriot years later we have as a rule concluded that in both cases the same John Smith was meant. But since Christian names were bound to re-appear over a period of time within the same family, it is quite possible that the John Smiths paying fines or heriots on different dates were in fact different persons.

Now and again this is borne out by our records. Thus in 1328 we read of a heriot and an entry fine paid in Waltham by Richard atte Downe for land which belonged to Richard his father, but years later in 1349 we read of yet a third Richard atte Downe, *Ricardo filius Ricardii*, paying an entry fine for the same holding. Thus in three generations in the same family the heirs have the same names; and, but for the references to parentage and exceptionally clear indication of holdings and entry fines, we might have been led to assume that all the entries related to the same person and that Ricardus atte Downe was alive for twenty years after he had paid his first heriot.[3] Similarly, in 1297 heriot is paid for the land of Richard Schogell which goes to his son John. But in 1301 Richard Schogell is recorded paying a fine for the holding of his father, John Schogell. He is obviously a grandson of the man with the same name who paid heriot only four years previously. Yet if the name of his father had not appeared in the entry (and the names of fathers frequently do not appear) we would have taken it for granted that Richard Schogell II was the same man as Richard Schogell I.[4] There are several other cases in the Waltham records in which supplementary information enables us to discover that the same names in fact related to different persons.[1] But in many cases no such supplementary information is available, and in these we have had to assume that the same person was meant in all the entries and have computed our average expectations of life accordingly.

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[1] P.R.O. Eccl. 2/159352 (first heriot in 1342); 159358 (death and taking over of his land by grandchildren in 1349); also Waltham Rental, *op. cit.*

[2] P.R.O. Eccl. 2/159337 (first heriot); 159338 (marries off daughter); 159342 (*do* another daughter). For Christine atte Hassele, see *ibid.* 159340 and 159349.

[3] *Ibid.* 159340 (1328) and 159358 (1349).

[4] *Ibid.* 159315 (1297) and 159319 (1301).

These 'questionable' cases greatly swell our sample of heriot-payers who lived longer than five years after the first heriot payment. Yet even thus swollen, the cases represent not more than ten per cent of the total number of money heriots. We must therefore conclude that by imposing money heriots on certain sales of land the Bishops did not divert the heriots from their original function of death duties. This general conclusion emerges very clearly from the analysis of some 2235 instances of heriots and entry fines on the manor of Waltham for the period 1325–51 collated with the tenancies recorded in the Waltham rental of 1332/33.[2] Of some 400 deaths represented by heriots in Waltham, about 350, i.e. about 88 per cent, were levied on the holdings of deceased tenants soon after their deaths. The remainder were levied on land transactions *inter vivos* in which the sellers were old men or women who might be expected to die within a few years of the transaction.

However, this element of anticipation does not leave our evidence or its meaning wholly unaffected. Though it does not prevent us from treating the figures of heriots as record of death duties, it is bound to affect the use to which they can be put. To the extent to which some of our heriots—12 to 15 per cent of the total—do not coincide with the actual years of death, the annual fluctuations in the figures of heriots would not reflect with absolute accuracy the fluctuations in the deaths themselves. And as there is no reason for doubting that the distribution of sales *inter vivos* was random, their effect on our figures would be to reduce the sensitivity of our figures to such lethal factors as bad harvests. We shall have to show presently that some other peculiarities in our records also tended to reduce or modify the apparent amplitude of fluctuations in annual deaths. If so, the effect of heriots *inter vivos* would be to make the statistical records of deaths appears smoother than it must have actually been However, more will be said about this later.

With this correction in mind the figures of the heriots may be used to trace the course of mortality on the five estates of the Bishops of Winchester. But before this can be done, yet another logical and statistical hazard must be surmounted. The most usual procedure for measuring mortality is to express it in the form of death rates, i.e. as annual percentages of the total population alive at the beginning of each year. In our tables and graphs here we propose to deal not with death rates but with absolute numbers of deaths: a procedure which is more convenient for dealing with smaller samples. Yet the main statistical problem of a 'rate' is not thereby avoided. For if the absolute figures of deaths are to have any significance and are to be comparable over the period as a whole they must be assumed to relate to a 'stable population', i.e. to a group which remained the same in size throughout the period. Our assumption must therefore be that the numbers of customary tenants liable to heriot—about 1700—did not materially change in the 100–120 years before 1348.

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[1] Thus in Eccl. 2/159343 for 1331 we find a heriot *post mortem* Roberti de Forde, but in the following year (*ibid.* 159344) a Robert de Forde pays a fine for a holding. In 1343 (*ibid.* 159353) a heriot is paid for the land of Adam le Melemongere who we are told *bastardus fuit et obiit sine herede de se*, but in 1350 (*ibid.* 159359) an Adam le Melemongere pays a fine for a holding. In *ibid.* 159358 (1349) we find a heriot paid for land of Robertus atte Putte, and also a fine by *Robertus filius Roberti atte Putte pro terra que fuit patris sui*, and in 1350 Robertus atte Putte junior pays a fine for marrying (*ibid.* 159359). But for the fortunate existence of the record of the fine we should have been unable to distinguish the father from the son and should have classified this case as one of a tenant surviving for a long period after payment of heriot.

[2] The entry fines and heriots are derived from the following accounts: Accounts: Eccl. Com. 2/159337 to 159348; Eccl. Com. 2/159451; Eccl. Com. 2/159349 to 159354; Eccl. Com. 2/159361 and Eccl. Com. 2/159355 to 159360. Waltham Rental: Eccl. Com. Various 159512, 1/9.

Is this assumption justified? We believe that it is; and our belief is based both on our assessment of changes which must have occurred in the size of the group and on those measurements of the group as a whole which we happen to possess.

Changes in the size of the group could have been brought about by several causes. Taking the thirteenth and fourteenth centuries as a whole, the numbers of customary tenants must have suffered a slow erosion, partly by manumission and partly by the lapse of tenancies and the absorption of holdings into demesne. But the difference this makes to our figures, especially over the period between 1270 and 1348, when the figures happen to be most continuous, is very small. On most of the Bishops' manors the customary holdings drawn into demesne appear to have lapsed by 1209 and very few lapsed after that date. The same applies to erosion by manumission. Outright manumissions lifting tenants wholly out of villein condition were very few and far between on most medieval manors. Unfortunately we do not possess for the Bishopric of Winchester any registers of charters containing manumissions, but if manumissions on the episcopal estates were as infrequent as the instances which in fact appear in the records, the accumulated reductions in the numbers of customary tenants by the middle of the fourteenth century could not have exceeded three per cent.

Small and slow changes like these may have slightly reduced the size of our group by the early fourteenth century. The possible reductions were in part compensated by certain small changes working in the opposite direction, i.e. those resulting from subdivision of customary holdings. However, on the Bishops' estates these were also very few. So on the whole we should be quite justified in assuming that even if the numbers of customary tenants declined somewhat during the period, the decline was too small to affect our calculations materially and to prevent us from assuming that our figures of heriots related to a body of customary tenants which remained fairly constant in size throughout the period.

This conclusion is supported by such direct measurements as we possess. Thus on the Manor of Waltham, for which surveys at two points of time are available, the number of customary tenants in the dated survey of 1259 differs very little from the corresponding number in the survey of about 1332. It is c. 355 in the former and 349 in the latter.[1]

Similarly, in the other manors for which comparable figures are available the numbers of men liable to boon services (a group almost identical with customary tenants) listed in the bailiff's accounts of the early fourteenth century differ little from the numbers of customary tenants in the surveys of the mid-thirteenth century. Thus for Taunton, the largest manor in the group, the numbers are c. 635 in the mid-thirteenth-century survey and c. 592 in boon works of 1322. The numbers might be even nearer if we excluded the non-virgated holdings in the surveys, on the ground that some of them were held by non-customary tenure. These holdings, however, do not account for more than ten per cent of the total, and moreover contain a number of tenants paying heriot.

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[1] MSS. B. M. Egerton 2418.

It will be noticed that such differences as these figures disclose show some decline in numbers, but small as the decline appears to be, it probably exaggerates the actual reduction in the numbers of customary tenants liable to heriot. For the lists of men charged with services in the bailiff's accounts of the mid-fourteenth century do not as a rule include tenants who had permanently commuted their services while continuing to hold by customary tenure subject to heriot.

The total changes in the group as a whole were thus too small and too uncertain to justify an attempt to correct our figures by an assumed or an estimated allowance for error. Such small changes as there were, were mostly in the downward direction, and a statistical allowance for them would merely accentuate the rising trend of death rates towards the end of the period which our figures show in any case. More about this will, however, be said presently.

III

For all these reasons we believe that the series of heriots available to us provide us with a useful indication of the real numbers of deaths among customary tenants. Though not expressed as percentages of the totals of customary tenants in surveys, the series approximately represents the movements of death rates among the adult members of the group. The figures for the manors taken together are summarised in Table I and are presented graphically in Graph 1. Graph 2 represents the same figures for the manor of Taunton, the largest manor in the group, which accounted for nearly one-third of our heriots. These graphs and tables also include the data of wheat prices as an indication of harvests.

The most obvious feature of the figures, taken as a whole, is their magnitude. The average number of deaths is 70 for the period as a whole and about 90 for the last 55 years, i.e. the period between 1292–1347, for which the data are most continuous and reliable. As our total group of customary tenants numbered just over 1,700 in 1321 our figures of heriots are equivalent to death rates of 40 and 52 per thousand. This is an exceptionally high rate. The crude death rate in post-war England and Wales is about 12 per thousand. At first glance the rate at its higher variant appears to be nearly twice as high as the death rate of the English population in 1801, and even higher than the death rates in other pre-industrial societies of Europe and Asia. An approximate estimate of european death rates in the early nineteenth century (Sundbärg's) puts them at 32 per 1000, even though at that time it was only 26–28 per 1000 in Sweden.[1] In India the lower estimates of death rates of the total population puts them at over 25 per thousand in the 1930's, and over 35 between 1890 and 1930. A higher and more recent estimate is that the death rates were over 41 per 1000 between 1881 and 1901, and between 40 and 50 between 1901 and 1921. In Russia the rates were over 38 per thousand in the 1860's and about 30 per thousand in the second half of the nineteenth century taken as a whole.[2]

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[1] Sundbärg, *op. cit*; H. Gille, 'Demographic History of the North European Continent,' *Population Studies*, III (1949–50), 33 *seq*.

[2] Kingsley Davis, *The Population of India and Pakistan*, (Princeton, 1951), p. 36. The Russian figure for the 1860's is an average of the ten years from 1861 to 1871 (the figures for 1866 missing) in A. G. Rashin, *Naselenie Rossii za 100 liet* (Moscow, 1956), p. 186.

However, these are very rough juxtapositions which cannot be taken and are not offered here as an accurate comparison of the relative levels of mortality in medieval England and in other pre-industrial societies. The differences were wider than the superficial comparison of figures would suggest. Our figures, are of course, 'crude' rates, i.e. rates not corrected for differences in age structure. To this extent they may at first sight appear to exaggerate the real incidence of deaths in medieval England compared with nineteenth-century India or eighteenth-century England. Whereas the Indian population grew fairly fast, the English population of the late thirteenth and early fourteenth centuries probably grew relatively slowly. In our own day, the high proportion of children and young persons in fast-growing populations will reduce the 'crude' death rate well below the real rate; on the other hand in slowly-growing populations crude mortalities may be relatively high merely as a result of greater proportions of persons in older age groups.

However, this tendency of our figures to exaggerate the mortalities in medieval England, when population grew very slowly, in comparison with those of nineteenth-century Russia or India, when population grew much faster, is more than offset by the fact that the Winchester figures are confined to adults and leave out altogether the deaths of infants and small children whose mortality in pre-industrial societies is invariably much higher than that of adults. Indeed infant and child mortalities in backward societies are, as a rule, so high as to lift the average death rates of persons under 20 well above those of persons over 20: and that in spite of the fact that adolescents and young adults in the ages between 15 and 20 as a rule suffer fewer deaths than other age groups in the population, except of course the very aged.[1] In eighteenth-century Sweden the death rate of males under 20 was between 55 and 60 per thousand compared with about 30 per thousand for the population as a whole. In Russia between 1908 and 1910, out of every thousand deaths of males, 682, or rather more than two-thirds, were accounted for by the deaths of males 20 years old and under, and mainly by those of infants and children under five. With the overall Russian death rate in these years standing at about 30, the death rate of males over 20 must have approximately equalled 20 per thousand. If these differential death rates of the Russian adult population were used to convert the Winchester death rates of adults into those of the population as a whole, a crude rate as high as 70–75 per thousand would result.[2] Somewhat similar results would emerge from the comparison of Winchester rates with the adult death rates of Indian population between 1890 to 1920. There is thus very little doubt that the mortality on the Winchester manors in the second half of the thirteenth and the first half of the fourteenth centuries was at least as high, and probably much higher, than the mortality in any other pre-industrial society whose evidence is available to us.

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[1] Indeed the remarkable feature of the 'age specific' mortalities of pre-industrial societies (and on this point their similarity is remarkable) is the exceptionally high death rates of children other than infants, and mostly of those between 1 and 5 years of age: Gille, *op. cit.* p. 47; Octavio Caballo, 'The Demography of Chile', *Pop. Studies*, IX (1956), 249; G. W. Roberts, *The Population of Jamaica* (1957) (for 1881); Sigismund Peller, 'Mortality Past and Future', *Pop. Studies*, I (1947), 424–9.

[2] Gille, *op. cit.* table on p. 47; Rashin, *op. cit.* p. 202; according to the available data of the age structure of Russian population in 1897, persons of 20 and over formed in that year 51·3% of the total population, or little more than half. The vital statistics of Russian population, and its age-structure did not alter sufficiently between 1897 and 1908 to prevent our fitting the generation tables of the latter year to the mortality figures of the earlier period.

IV

The other feature of the graph is the apparent rise in the secular trend. Over the period as a whole the apparent rise appears to be most spectacular. For whereas the average number of deaths in the first forty years was about 40, the corresponding average for the last fifty years was at least 52. Needless to say, this contrast is in some respects more apparent than real. It conceals important differences between the mortalities of different sections of village population (more will be said about this later) and to this extent masks the real trend. As we have already stressed elsewhere, the manorial administrators before 1240 did not apparently collect money heriots from poor tenants with any regularity. The records of heriots in these years certainly underestimate and sometimes completely leave out the deaths among the poorer tenants. Judging from manorial accounts and returns of the manorial courts, the collection of money heriots became regular in the second half of the century, and was for all we know complete after 1270. From that time onwards our statistics show a pronounced rise in the numbers of poor men's heriots which became very steep after 1290. Indeed so clear and so rapid is the rise in the trend, especially in the 1290's, as to suggest the possibility that the series between 1270 and the 1290's was also influenced by an administrative change. But although this possibility must not altogether be excluded, the evidence at present available makes it appear very remote. Our documents bear no trace of a change in the administration of the heriots, and the record of heriots is well matched by that of entrance fines and thus appears complete.[1]

Moreover, the rise continues beyond 1290. There is no statistical reason for suspecting any change in the basis of assessment and collection of heriots between 1290 and 1347; and the figures in our possession are not only full and comprehensive, but also appear to be statistically consistent when arranged in a series. Yet at a first glance the deaths in this period also exhibit an upward tendency. The graph of deaths rises to a hump during the years of disastrous harvests at the end of the second and the beginning of the third decades of the century. With the passing of this bad patch the hump levels out and death rates decline below the summit of 1317–1318, but they still keep above the level at which they stood in the early 1290's.

However, the figures are open to yet another objection which must be considered before any definite conclusion about the trend is drawn from them. This objection, like another objection already dealt with, relates to the 'crude' character of our death rates. As long as the death rates remain unadjusted to changes in the age composition of the population, such trend as they may exhibit can be suspected to represent not greater or smaller ravages of death but changes in the age structure of the group. In our case the rise in the 'crude' rates might signify nothing more than a gradual increase in the proportions of older men.

This objection does not find much support in the purely statistical feature of our series. The fact that the minimum numbers of animal heriots in the four quarter centuries were so consistent—24, 24, 28, 24—strongly indicates that the group remained essentially comparable in numbers and in age structure. This purely statistical conclusion is supported by the general balance of historical probabilities. If it could be shown that mortality among children and youths was rising throughout the period, the probability that the average age of the population was also rising would be very great. But in a social group in which mortality of infants and children was always very high, a rising trend of deaths was not necessarily characterised by still higher proportions of infants and children among the dead. Indeed, in so far as the increased deaths were due to greater frequency and severity of famines and diseases following from them, the evidence of other countries, such as Russia and India, suggests that the victims were the old and the infirm as well as infants and children, and that the highest rate of survival was among the older children and the young adults.

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[1] See below, Mr Longden's note.

The main reason, however, why high mortality among the young might not have affected the age structure in our group is the nature of the group itself. For our group is not a self-reproducing demographic entity but a purely tenurial assortment of people. It was recruited not by natural increases within its own ranks but by succession to holdings. If our evidence is to be trusted a surprisingly large number of successors were men who married the dead men's widows and who very frequently had come from outside our group. Some of the incumbents, especially those who acquired holdings by purchase and were parties to anticipatory money heriots, were complete outsiders and might even have come from other villages. If so, the rising mortality of the young in the population as a whole, even if it were rising, need not have altered the average age of incumbents to new holdings, or at any rate need not have altered it to a significant extent.

The true causes of changes in the age composition of our group, if changes there were, were probably economic, i.e. the prevailing land hunger and the plethora of would-be tenants. The growing difficulties of hiring, buying or inheriting a holding must have greatly increased the numbers of 'unplaced' men in those age groups from which came most of the men who in more spacious times acquired holdings, married, and settled down. It is only in so far as the reservoir of would-be successors to the dead tenants contained an ever-growing number of older 'expectants' that we could expect it to influence the age composition of our group.

These arguments, both statistical and historical, cannot of course be decisive. As long as direct evidence of age structure of medieval populations is not available, we must not altogether exclude the possibility, however remote, that the age composition of our group rose sufficiently to account for some of the apparent rise in deaths during the period. However, even if this demographic ambiguity attached to our trend, it would not deprive it of economic significance. From the economic point of view, the rising death rates—if they were really rising—and the changing age composition of the group—if it was changing—would be merely different manifestations of the same economic malaise: the shortage of land in the thirteenth and early fourteenth centuries and the relative over-population of the countryside with its adverse effects both on the standards of life and on the age composition of incumbents to holdings. This conclusion anticipates the next and more purely economic stage in our argument.

V

This purely economic argument is suggested by the rather striking feature of our Table 1 and Figure 1, i.e. the violent short-term year-to-year fluctuations. What makes these fluctuations all the more remarkable is that the main statistical bias of our figures is to smooth out such fluctuations as there were.

One such feature has already been discussed. Those heriots which were by nature 'anticipatory', i.e. were paid not on holdings of deceased tenants but on those of aged tenants selling their land, could be expected to be distributed at random. And a random dispersion of these heriots would tend to blur the actual record of fluctuating death rates, in so far as the fluctuations were due to the visitations of plague or famine.

This, however, is not the only levelling bias in our statistics. The whole distribution of heriots, their collection and their recording, were such as to carry some of the entries over into one or two years following the actual years of death. In the first place there was the accounting convention of manorial documents. Bailiffs' accounts almost invariably ran from Michaelmas to Michaelmas. A death occurring in the late summer and producing its heriot in the following autumn would thus be recorded not in the accounting year in which it occurred but in the accounts of the following year. For this reason higher records of heriots sometimes occur not in the year of the famine or epidemic which probably caused them, or at any rate not only in that year but also in the year following.[1]

In so far as deaths were caused by bad harvests and famine a further interval was bound to intervene between our figures of deaths and the events which caused them. Starvation, unlike an epidemic, does not kill men outright. It may debilitate them and thus condemn them to an earlier death than the one to which they would otherwise have succumbed, but this would not necessarily result in immediate demise. In any case, in years of bad harvest, shortages were sometimes at their worst in the late summer, i.e. on the eve of the new harvest. The worst effects of a famine would therefore be felt in that tail end of the accounting year which, as we have already seen, would not produce its crop of recorded deaths until the following accounting year.

Yet further discordances between the fluctuations in the records of deaths in our sources on the one hand and the incidence of the factors causing the deaths on the other will be found in the periods in which 'bad years' succeeded each other without appreciable intervals. Generally speaking we might expect that, short of a total failure of crops, a moderately bad harvest would not necessarily cause numerous deaths from starvation, but that a succession of such years would so enfeeble the village population as to send the death rates sharply upwards, and keep them high even in the intervening years of relatively low prices. On the other hand a year of severe epidemic or a really disastrous famine, in the course of which most of the old, infirm, or poor starvelings perished, would 'purge' the population of its weaker element and be succeeded by a year of lower death rates, even if it also happened to be a year of famine or disease.

For these reasons we might expect our figures to be not only less liable to fluctuate from year to year than actual deaths must have done, but also to be somewhat irresponsive to the immediate impact of bad harvests and famines. It is therefore all the more remarkable to find how much our figures in fact fluctuate and how nearly the fluctuations coincide with harvests or other catastrophic mortality factors. In some years, to be mentioned later, the figures of heriots appear to reflect the deaths of preceding years while in others the high numbers of deaths follow not a dearth or famine in the year in which they occur, but a whole sequence of bad years. But in general the figures fluctuate sharply, and most of the sharper fluctuations appear to synchronise with the events which could be expected to cause deaths in thirteenth-century villages.

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[1] Yet this tendency is not sufficently consistent to allow us to plot our figures with a one year lag, as in Gille's study of Scandinavian mortalities, *op. cit.* p. 45.

We believe that the fluctuations, or at least a large number of them, can be correlated with the main causes of deaths. But while tracing this correlation, and especially while drawing evidence of prices and harvests into our discussion, we must bear in mind not only the warnings already uttered, but some other warnings more strictly relevant to our search for underlying causes. In the first place, only wide fluctuations in numbers of deaths and in prices need be considered. It is only when deaths rise well above the average, i.e. above 45 for animal heriots, and 85 for total heriots after 1290, that the action of severe lethal factors such as famine or epidemic, can be suspected. Similarly, with the average secular price of wheat averaging somewhere around five shillings per quarter, prices only a little higher than that could not be taken to denote failures of harvest and severe privation for the cultivators. On the whole it would be reasonable to consider the effects of only those rises which carry the price above say, seven shillings a quarter, and not to speak of real famine until the price exceeded, say, eight shillings. But in applying this principle we must also bear in mind that prices frequently changed in the course of a year, and a moderate average price often conceals a steep rise from low prices at the beginning of the year to really high prices at its end, or else a fall of prices from a high maximum. It will therefore be sometimes advisable to take into account not only the average prices listed and traced in our Table I and Graph 1, but also the maximum prices.

Finally, while accepting the relevance of wheat prices it is important to remember that the villagers' 'daily bread' was as a rule not wheat but rye or mixed grains containing barley and oats. In general it is safe to assume that in years in which wheat failed the rye crops also failed badly. It is, however, possible that in years in which winter crops, i.e. wheat and rye, failed, spring crops, i.e. barley, oats and legumes, did well, and *vice versa*. We must not, therefore, exclude the possibility that in some years in which prices of wheat were high the villagers were nevertheless sufficiently provided with other food grains. The extent to which this possibility may disturb or cancel the correlation between prices and deaths will have to be subjected to separate statistical tests, but in general the evidence at our disposal makes it clear that the years in which famine prices prevailed were those of general failure of crops.[1]

With these warnings and complications in mind we can now proceed to survey the fluctuations of deaths from year to year and to attempt to suggest the causes of high deaths in years in which they happen to be discoverable.

For convenience of exposition we must begin with the discussion of total heriots even though it will be shown further that the fluctuations in total heriots may be consistent with the absence of significant fluctuations in the heriots of more substantial tenants. Our series opens with four years, 1245–49, in which heriots synchronised with the movements of prices in two years, notably in 1247–48 and 1248–49, and may or may not have synchronised in the other two. The fluctuations may not, however, be of much importance; while prices were on the rise and stood at a relatively high level and the deaths were also somewhat above the average, neither the rises nor the subsequent falls diverged far enough from the average to lend them special significance. For the following two years, 1249–51, we have no evidence, but between 1252–3 prices and deaths rose simultaneously. The rise in prices may not appear to be very high, but this is one of the years in which average prices are probably misleading. The chroniclers report heavy rains in the early autumn of 1251 followed by bad drought in summer and a failure of crops in 1252. As a result the prices which had been low at the beginning of the year rose considerably higher in the late summer and early autumn of the same year, reaching a level of eight shillings and above, denoting a real scarcity.[1]

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[1] See below, Mr Longden's note on grain prices; also D. L. Farmer, 'Some Grain Price Movements in Thirteenth-Century England' in this *Review*, 2nd. ser. X, No. 2 (1957).

After a year's gap in our series, we find in 1254–55 prices and heriots at a low level; in 1257 and 1258, after another gap, heriots were above average and prices high: the chroniclers again report wet weather, failures of crops and great dearth.[2] After yet another gap in our records we find that in 1263 both figures are lower again; and both are still level between 1265–66. An uncertain interval due to insufficient evidence follows; and when the series resumes both prices and deaths rise to the high peak of 1271–72, which was apparently preceded and prepared by a year of very high prices in 1270.[3] The chroniclers in fact tell us that 1270–1 was a wet year followed by the exceptionally wet spring of 1271 in which crops were ruined. The following autumn was apparently also wet and inclement and was followed in the summer of 1272 by a punishing drought which brought famine and death to the whole of Western Europe.[4] The peak of deaths and prices was reached late in 1272 (probably late in the year) and thereafter both indices appear to fall sharply to 1274. The interval between 1275–83 is badly served by evidence.[5]

When in 1283 our run of evidence is resumed, the opening period—up to 1287—is marked by fluctuations, mostly small and perhaps for that reason not very significant. In 1283 there occurred the first apparent divergence between our indices, for whereas prices for 1283–84 fell to four shillings and eightpence, the deaths rose somewhat. The rise in deaths may perhaps have been too small to correlate with prices, but in any case our record of low prices in this year may be misleading. Though the average prices were low, the maximum prices were high. They had been very high in 1282–3, reaching ten shillings and twopence in Taunton,[6] and stayed high in the early months of the following year, when they reached nine shillings and fourpence a quarter in Oxfordshire; on Winchester manors they stood round eight shillings in Meon, Wargrave and Taunton, and only a little less elsewhere. The chroniclers indeed report that the spring and summer of that year were very wet. Spring-sown grains must have fared badly and prices of oats and drage were in fact quite high.[7] In the following year, 1284–85 prices and deaths moved downwards together, but the movements are again too small to be very significant. In 1285–86—a year which according to the chroniclers was one of drought followed by a wet autumn—both prices and deaths rise. Then in 1286–87 there occurs a divergence between the two movements which may be too slight to be of any importance; but after a year of falling indices we come to the year of 1288 which is marked by divergences between prices and deaths which appear to be both wide and significant. Whereas prices in 1287–88 and 1288–89 were among the lowest in the century, death rates in the later year soared to the yet unprecedented level of seventy-six. This divergence is indeed sufficiently important to deserve a more detailed consideration.

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[1] Eccl. Com. 2/159291A; *Matthaei Parisiensis monachi sancti Albani Chronica Majora,* Rolls Series (1872–84), X, 279.

[2] Thorold Rogers reports abundant evidence of very high prices in that year all over the country, wheat having sold in July for 9s. His evidence of high prices comes largely from Hampshire, i.e. from one of the Winchester manors. Rogers believes the high prices were due 'to the unfavourable prospects of the coming harvest rather than to the scantiness of the actual crop, prices rising rapidly towards the summer of 1271'. J. E. Thorold Rogers, *A History of Agriculture and Prices in England,* I, 188–9. However, see below footnote 3; Matthew of Paris, *op. cit.* V, 728.

[3] Eccl. Com. 2/159299; 159300.

[4] Gervase of Canterbury, *Opera Historica,* Rolls Series (1879–80), II, 272.

[5] There are no Account Rolls for the years 1275/6 and 1278/9 to 1281/2.

[6] Eccl. Com. 2/159305.

[7] J. E. Thorold Rogers, *op. cit.* I, 191; *Florentii Wigorniensis Chronicon.* Eng. Trans. Bohn (1854), p. 369.

High death rates of 1288–9 were clearly due to causes other than bad harvests. The chroniclers tell us that in the dry year of 1288 harvest was abundant and bread was cheap; and the Winchester prices fully bear out the account of the chroniclers.[1] But most chroniclers also report that in the summer of that year drought was so continuous and the heat was so intense that a multitude of people died. The presumption of course is that what caused the deaths were the epidemics characteristic of prolonged drought and heat in an era of poor water supplies and primitive sanitation. Wells and streams must have dried up, people must have drunk brackish and infected water, and refuse was not washed down to the sea. According to some chroniclers the drought continued into 1289 until it was broken by violent thunderstorms and followed by a failure of crops.[2]

That death rates should have fallen as they did after the high peak of 1289 is something to be expected. We must not, however, conclude that the fall occurred despite the high prices, for prices were apparently average through the greater part of 1290 and did not begin to rise until the summer in anticipation of the next year's bad harvest. Having risen to over eight shillings (9s. 2d. in Taunton), they stood high during 1291–92 a year which the chroniclers describe as cold and wet.

Prices continued to move somewhat irregularly until 1303. These years marked the beginning of a period during which the secular trend rose strongly and markedly above the level of the previous half-century. As we have already suggested, it is possible to argue on purely statistical grounds that the apparent rise in the trend at the end of the thirteenth century may have resulted from an unknown change in accounting methods. But we have also noted there is nothing in the records themselves to indicate an accounting change, and that we cannot therefore dismiss the evidence of the rising trend on the ground that it reflects a fuller collection of the heriots. It is however, permissible to conclude that where the year-to-year oscillations do not carry the number of deaths much below or much above the heightened secular average, the annual movements may be of little account. Prices in their turn do not fluctuate to any great extent during this period.

When after a short gap in our evidence the record becomes continuous again in 1306 both prices and deaths enter into a clearly marked phase covering the first two decades of the fourteenth century, when frequent and disastrous failures of harvests were accompanied by exceptionally high death rates. Prices were high in 1308 and had been rising in the latter part of 1307 in anticipation of a bad harvest. Deaths also rose to a high level. But whereas in the following year—1309—the deaths fell somewhat (though they still stood above eighty), perhaps in reaction to the high deaths of the previous year, the prices entered

[1] *Annales Prioratus de Dunstaplia*, Rolls Series (1866), p. 341; *Annales Prioratus de Wigornia*, Rolls Series (1869), p. 495.

[2] *Willelmi Rishanger Chronica et Annales regnantibus Henrico Tertio et Edwardo Primo*, Rolls Series (1856), p. 119.

into the first of the headlong rises which characterised the period as a whole. As our table and graph show, deaths during this period reached the exceptional height of 100 and above. The years of 1312 and 1313 saw a return to more moderate prices and a pronounced reaction in deaths. But the years 1315, 16, 17 witnessed a heightened crisis in agriculture and a rise of mortality to unprecedented heights. The disastrous sequence begins with the wet winter and failure of crops and high prices of 1314–15. The prices were not only generally high but were apparently mounting in expectation of the truly disastrous crops of the following year. In that year (1316) failure was complete, and the price of wheat at some places approached the giddy level of 24 shillings per quarter, and over great parts of southern England stood at over three times the secular average. The chroniclers tell us that the mortality was great and our table and graph show the deaths rising to over 170, a level very much higher than any other year before the Black Death. So high it was that, but for the Black Death itself, these years might well have left their mark in historical records and popular memory as the years of highest mortality in the Middle Ages.

When death rates stood at so high a level and bad years occurred at such frequent intervals it would perhaps be unwise to analyse annual fluctuations too closely, since years of heavy mortality were bound to be followed by years of reaction when death rates plunged even if conditions continued to be hard. Yet the general effect of bad years is unmistakable, and prices and deaths continued to move together for at least another three years after 1317 and possibly for six years till 1325.[1]

During an interval of about five years till 1332 the two series appear to be moving without any recognisable relation. Indeed, at two points in 1328 and 1332 the divergences between the two indices are nearly as wide as we have noticed them to be in 1288–89. The heriots of 1328 may of course have reflected the mortalities of the previous summer. The chroniclers tell us that 1326–1327 was a year of unprecedented drought, 'brooks and streams, wells and marshes which previously had never dried up became dry everywhere'.[2] It is therefore probable that the conditions were the same as those of 1288–89, and the drought of late summer was accompanied by an epidemic which left a deposit of heriots in the accounts of the year beginning in the following Michaelmas. More difficult to account for is the divergence between prices and deaths in 1332. In that year and to some extent in the preceding year (1330–31) deaths slumped though prices were high and rising. A possible explanation is the very high mortality of the previous years, after which a reaction was to be expected. That the high mortalities had indeed carried away a large proportion of the population is shown by the complaints of Winchester bailiffs of the shortage of men for harvest work—the same complaint which we saw in the records of the great epidemic of 1288–89. There are several references in the bailiffs' account of 1332 to the *nimia caristia falcatorum*, *caristia metencium*, *caristia messorum*.[3]

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[1] Our records unfortunately do not provide us with data of the next disastrous year—that of 1322. Our tables show prices in 1321 fairly high—over 8s. per quarter, but in fact prices had been much lower and rose at the end of the year in anticipation of the disastrous harvest of 1322. There is thus nothing surprising in the deaths of 1321 being as yet fairly low. In 1322 the rise continues to a level very nearly as high as that of 1316. Rogers's Sussex prices are as high as 21s. 6d. per quarter; elsewhere they are only a few shillings lower; and chronicles report high mortalities. Prices apparently continued very high in 1323 and 1324, though in some places they fall somewhat during the summer. Unfortunately we have no evidence of heriots for these years, but it would be surprising if deaths were not high.

[2] *Annales Paulini*, Rolls Series (1882), p. 312.

[3] P.R.O. Eccl. 2/159344, Suttona, Expensa Autumpnalia: *In 2 acris vescarum et 4 acris pisarum falcandis ad tascham 3s. 6d. pro acra 7d. et tantum hoc anno propter nimiam caristiam falcatorum*; Eccl.

However, both prices and deaths rose to a high level in the following year.

After a gap of a year, the series resumes in 1335. The figures of the first two years, 1335–6, appear to suggest that deaths and prices synchronised: the prices rose slightly and so did the deaths, but the increase in deaths does not carry the rate above its average for the period and may be fortuitous. The prices and deaths for 1337–38 again appear to diverge, but the deaths in that year though high, were not much higher than the average level in this period of high deaths. On the other hand, in 1342, the divergence is very marked. This may again have been a year of pestilence. Direct evidence of pestilence in that year is not, however, to be found in our records. Between 1343–48, the eve of the Black Death, both heriots and prices appear to be interrelated. But as we shall see presently the interrelation was not equally close for the different groups of tenants. The general level of mortality was above average, but the correspondence with prices appears only in 1346, when both deaths and prices were low, and in 1348 when deaths were high and prices had stayed high for two years.

Little need be said about the Black Death itself. In order not to affect our averages and trends unduly, the catastrophic events of 1348–49 have been left out of all our computations. The reader must, however, be warned against at least one unwarranted conclusion about the Black Death. Our tables and our graph suggest a death rate somewhere near 500 per 1000. The actual death rates during the epidemic may in fact have been higher than is commonly assumed, but our data must not be employed to measure them. In a group like ours which, to repeat, was not a demographic entity but a tenurial one and which was renewed not by births but by accessions to tenures, it was possible in catastrophies such as 1348–49 for the same holding to be re-let to successive tenants several times in the course of the same year. Indeed we read of cases in which customary tenants succeeded each other three or four times. Mortalities in a group like ours obviously cannot be used as a sample of mortalities in the population as a whole during years in which death could cause successive changes of tenures in the same year. Fortunately, for our statistics and our arguments, the years of 1348–50 were the only ones in which this appeared to be probable.

To sum up. Our records provide figures of heriots for some 83 years over a period of about 110 years. In at least 19 of these, i.e. 1245–46, 46–47, 83–84, 84–85, 86–87, 1292–1303 and 1327–32, and perhaps also in 1335–36 and 1344–45, the fluctuations in deaths and prices were not of such magnitude as to be significant even if on several occasions the movements happen to synchronise. In one of these years—1283–84—a possible association between deaths and prices may have been obscured by the artificial price average of the year as a whole.

However, in most of the remaining years—at least some 40 and possibly some 60—the underlying causes of fluctuations in deaths can be surmised with some degree of confidence. The years of 1288–89, 1328–29 and possibly 1331–32 were years of summer epidemics. Epidemics may also have raged in other years but their effects are masked by those of bad harvests occurring in the same years. In one year, 1342, high deaths may have been due either to an epidemic or to famine conditions created by currency disturbances or to some other cause unknown to us. All the other spectacular rises in mortality coincide with or

2/159344 Farnham, Expensa Autumpnalia: *In blad(is) metend(is)... pro acra 7d. hoc anno propter magnam caristiam messorum*; Eccl. 2/159344 Alresford, Expensa Autumpnalia: *...et hoc anno tantum propter caristiam metent(ium) et allec(um).*

follow bad harvests and conversely all the high peaks of prices (except that of 1332) are accompanied by corresponding peaks of mortalities.

VI

The heriots and their correlations have an obvious bearing on the economic and demographic problem of the medieval countryside. A society in which every appreciable failure of harvests could result in large increases in deaths is a society balanced on the margin of subsistence. A balance so precarious and so frequently upset implies either or both of two inter-related possibilities. One is that cultivation was pushed to the point at which land could sustain its cultivators only in years of favourable harvests such as could be expected to occur in only about two years out of three; the other is that individual holdings were so small as to be unable to support their cultivators except in years of good yields. Both possibilities indicate an extreme degree of rural over-population. Whether in absolute numbers the population of the English countryside in the thirteenth century was greater than in other periods is immaterial. What is material is that given the productive powers of their soil, their technical knowledge, their capital resources and the burden of their rents and taxes, the numbers of peasants on the land were greater than its produce could support.

Put in this form the conclusion is of course too general and too much concerned with averages to mean much to historians. Historians could always find in their documents people who obviously did not starve every time the harvests failed. In a well-stratified society, such as medieval rural society certainly was, there must have been men more prone to succumb to failure of harvests than others. And it does not require much imagination to realize that the social group most likely to suffer from failures of crops was that worst provided with land and capital. The fact that the village as a whole, measured and judged by its averages, appears to have been poised on the verge of subsistence may mean nothing more than that a large proportion of the village population belonged to a class specially sensitive to failures of crops. Historians of medieval England need not be told that the thirteenth-century villages in fact contained large number of people thus placed. They were the smallholders and the cottagers whose holdings barely sufficed to maintain them and who often had to supplement their livelihood by work for wages. These people would suffer from the failure of harvests twice over—through the failure of their own produce and through the high prices they had to pay for the food they bought.

This general argument finds corroboration in our figures of heriots. Throughout this essay references have been made to money heriots levied on holdings too small and too poor to yield a heriot animal. The evidence of these heriots enables us to differentiate the deaths among the poor peasants from those among the more substantial villagers. The distinction can only be a very crude one. It is possible to find in most manorial documents references to holders of substantial tenements who did not possess any animals. These were probably men who, while figuring in our records as substantial tenants, in fact sub-let the whole or a portion of their holdings. On the other side of the dividing line it would be possible to find small holdings and cottages well provided with animals, more especially in pastoral regions or in villages with large commons. But in general there is little doubt that the bulk of holders who could not deliver a heriot animal were poor men. Our documents frequently imply this by explaining that a heriot animal could not be levied because the man had no animals.

The other shortcoming of money heriots has been mentioned elsewhere. Among the money heriots a proportion, perhaps as large as 20 per cent, and certainly not less than ten per cent, is represented by what we have described as anticipatory death duties levied on sales of land *inter vivos*. The anticipatory element in the money heriots introduces a two-fold complication. It may reduce the apparent responsiveness of money heriots to the underlying lethal factors; and it may blur the social distinctions as between money heriots and animal heriots. For even though most money heriots were levied on holdings of poor men, some were paid by substantial tenants selling portions of their holdings.

These crudities in our record must be expected to reduce somewhat the difference between respective price-death correlations of animal heriots and money heriots. It is therefore significant to find that the evidence, in spite of its indefinite lines of demarcation, shows money heriots responding much more immediately and sensitively to harvest failures than the animal heriots. Indeed our figures suggest that over the greater part of our period animal heriots show no correlation with prices, and that it is only in the first quarter of the fourteenth century—the time of the great famines—that animal heriots respond at all clearly to variations in crops.

The logic of these figures is further underlined by what we can observe from the behaviour of heriots in the years in which high mortality was due to epidemics. Whereas failures of harvests could be expected to hit first and worst the poor villagers, epidemics would presumably decimate the poor and the rich alike. And indeed in 1288–89 and 1328–29, the two years which were probably years of epidemics, the heriots of the poor and those of the rich rose simultaneously and approximately to the same extent.

The village smallholders and labourers were thus the harvest-sensitive element in rural society. It is through them that the effects of bad crops and high prices were transmitted to the village society as a whole. And it is their mortality that largely accounts both for the height and for the fluctuations of overall mortality. If the secular trend was rising it was at least in part because the proportions of smallholders in village population was also rising. The catastrophic failures of crops in the first half of the fourteenth century may of course have been due to unprecedented rainfalls, or to the progressive impoverishment of the soil, or to the spread of cultivation to marginal lands, or to all these factors in combination. But the sharp response of mortalities to crop failures undoubtedly reflected the high and rising numbers of tenants whose holdings were too small to enable them to sustain themselves in years of bad harvest.

To students of rural society in England these conclusions may appear familiar and indeed self-evident. They certainly agree with what we know of the incidence of deaths in other over-populated and backward agricultural societies. In Poland, in Russia, in China—in fact in all the pre-industrial societies for which evidence is available — the size of the holdings greatly influenced the demographic record, births as well as deaths, of peasant families.[1] But though not unexpected, the conclusions of our study may help historians to fill yet another gap in the puzzle of medieval population and to disclose some of the underlying social and economic facts.

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[1] Rashin, *op. cit.* p. 207, (table 159); A. Tshajanow, *Die Lehre von der bäuerlichen Wirtschaft* (Berlin 1923), p. 73; W. Stys, 'Influence of Economic Conditions on the Fertility of Peasant Women', *Pop. Studies*, XI (1957), 136 *et seq*; R. H. Tawney, *Land and Labour in China*, p. 72; F. Burgdörfer, *Bevölkerungsentwicklung im Dritten Reich* (Berlin 1937), pp. 46 and 78.

Table I. *H*

	38	45	36	49	53	45	76	76	92	91	115	96	101	103	63	98	101	1429	138
	7·8	6·10	(4·10)	6·5	4·8	3·3	3·11	·5	7·2	4·9	5·4	4·10	7·4	4·5	4·10	8·1	7·9	4·7	7·1
	32	35	24	43	39	33	54	40	41	46	41	34	38	42	30	48	33	754	20
	6	10	12	6	14	12	22	36	51	45	74	62	63	61	33	50	68	675	118
	4	6	8	3	1	3	8		4	7	9	11	6	7	4	5	2	100	5
	7·3	6·7	4·8	5·7	4·8	3·4	4·0	·4	6·8	4·6	5·4	4·8	8·0	5·0	5·4	8·0	8.4	5·0	6·8
	4	2	3	2	–	3	5		3	4	5	6	2	3	2	4	1	63	2
	–	4	5	1	1	–	3		1	3	4	5	4	4	2	1	1	37	3
	6	6	1	9	6	6	8	6	20	14	31	29	17	21	13	17	23	242	3
	7·6	7·1	4·9	6·4	5·0	3·4	3·11	·0	8·0	4·7	5·4	5·0	7·4	5·0	5·0	7·8	8·8	4·6	8·0
	6	5	1	9	6	6	8	1	2	5	7	7	6	9	6	7	8	159	3
	–	1	–	–	–	–	–		18	9	24	22	11	12	7	10	15	83	–
	7	13	4	7	13	6	9	3	9	8	15	11	14	11	11	5	12	156	13
	7·6	6·8	4·2	5·10	4·9	3·2	3·8	·0	7·4	5·2	6·0	5·4	8·0	4·3	4·9	8·9	8·4	4·0	6·8
	3	11	4	4	8	3	6		3	3	5	4	4	1	2	2	3	69	1
	4	2	–	3	5	3	3		6	5	10	7	10	10	9	3	9	87	12
	9	7	11	5	4	10	13	3	12	13	19	12	23	23	12	17	10	224	14
	8·0	6·5		7·0	4·7	3·6	4·0	·0	6·0	4·4	4·4	4·6	6·6	3·8	3·11	6·10	7·0	4·2	6·4
	8	7	8	5	3	7	8		9	9	5	7	9	12	7	9	4	155	3
	1	–	3	–	1	3	5		3	4	14	5	14	11	5	8	6	69	11
	12	13	12	25	29	20	38	1	47	49	41	33	41	41	23	54	54	707	103
	8·3	7·7	6·2	7·5	4·6	2·9	4·1	·11	7·10	5·1	5·8	4·7	6·11	4·0	5·3	9·0	6·6	5·1	7·10
	11	10	8	23	22	14	27	6	24	25	19	10	17	17	13	26	17	308	11
	1	3	4	2	7	6	11	5	23	24	22	23	24	24	10	28	37	399	92
2	3	4		6	7	8	9			1	2	3	4		6	7	9	9	
			1285					315	1340					1345					1350

STATISTICAL NOTES ON WINCHESTER HERIOTS

By J. LONGDEN

I must thank Professor Postan for introducing me to this very interesting material and for his counsel and guidance in interpreting it. For the methods used and any errors in what can only be a tentative analysis of the data, the responsibility is my own.

1. Animal Heriots—See Table I.

The average number was 38. This was the level in the middle decades of the thirteenth century. During the rest of the century heriots were below average (30–33) except for the 1280's which included the presumptive pestilence year, 1289. In the first three decades of the fourteenth century heriots were well above average (44–49) rising to a maximum in the famine years of the second decade. The average for the 1320's was raised by the high mortality of 1328 which may also have been a year of plague; between 1330 and the year of the Black Death the average was once more about 38—as it had been a century earlier.

Did the number of tenants effectively liable to pay an animal heriot remain about the same? The consistency of the minima at 24–28 in each quarter-century suggests this. If so, there was a complete 'cycle' in the numbers of animal heriots, as the tide of mortality ebbed and flowed and began to ebb again. But there is documentary evidence that the proportion and numbers of substantial tenants declined in the century before the Black Death. Therefore mortality in this group may have been higher in the 1340's than in the 1240's—in which case the cycle represents a long-term fluctuation, not about a consistent level, but about a rising trend.

2. Non-animal or 'Money' Heriots—See Table I.

The data for the earliest years are known to be incomplete. Subsequently, at about 1260, 1270 and 1295, there are abrupt, and as yet unexplained, downward or upward shifts in the level of money heriots. This is very unfortunate, as after 1295 changes in money heriots are far more instructive than the changes in animal heriots. We can say only that the recorded figures of money heriots before 1295 are much lower than they were thereafter, and that until more fully investigated these earlier figures are mainly useful for short-term comparisons.

The average number of money heriots in the first half of the fourteenth century was 46: animal heriots averaged 43 in the same period. In the first decade of the century it was only 30, and there may have been another unexplained upward shift after this. The average rose to 56 in the following decade of famine, fell to 41 in the third decade and rose progressively to 47 and 56 in the two decades before the Black Death. In these years money heriots became as high as they had been in the decade of famine thirty years earlier.

The apparent increase in the number of smallholders—who form the population at risk—may account for part, but not all, of the rise in money heriots: the figures imply a real and substantial rise in mortality for this group.

Table I *Heriots and Wheat prices on five Winchester manors, 1245 to 1348*

Period	Number of heriots		Wheat prices – per quarter –	Number of years covered out of total possible
	Animal	Money		
(1)	(2)	(3)	(4)	(5)
			Shillings and pence	
1245–9	38	9	4 8	5/5
1250–9	38	10	5 5	5/10
1260–9	30	2	4 6	5/10
1270–9	32	14	6 7	4/10
1280–9	37	12	5 4	7/10
1290–9	33	28	6 5	5/10
1300–9	44	30	6 0	7/10
1310–9	49	57	9 6	9/10
1320–9	44	41	6 6	4/10
1330–9	38	47	6 3	9/10
1340–8	39	56	6 1	9/9
1245–1299	35	12	5 6	6 decades
1300–1348	43	46	6 10	5 decades
1245–1348	38	28	6 1	11 decades

[1] Excluding years when records for any of the manors were missing or incomplete. It is possible, but not necessary, to include the partial data as well, the effect on the figures even for the 1270's and 1320's, when only 4 years out of 10 are fully covered being small.

[2] Long-term averages are averages of the decade averages, not of the annual figures. They differ because the number of years missing varies.

Table II *Correlations, and partial correlations, between Animal heriots, Money heriots, and Wheat prices on five Winchester manors, 1245 to 1348*

Period and No. of years data	Correlation (r²) between		
	Animal and Money heriots	Animal heriots and Wheat prices	Money heriots and Wheat prices
(1)	(2)	(3)	(4)
		Direct correlations	
1245–59 (10)	·00	·01	·37
1263–69 (5)	·11	·07	·64
1273–92 (12)	·07	·00	·00
1297–1321 (20)	·32	·23	·75
1325–41 (13)	·03	·04	·12
1342–48 (7)	·05	·09	·02
		Partial correlations	
1245–59 (10)	·00	·01	·37
1263–69 (5)	·04	–·00	·62
1273–92 (12)	·07	·00	·00
1297–1321 (20)	·12	–·00	·67
1325–41 (13)	·01	·03	·10
1342–48 (7)	·04	·08	·00

[1] The division into periods conforms to the phases apparent in the data.

[2] There were two years when we can assume there was epidemic mortality—1289 and 1328—and these have been excluded in computing the correlations.

[3] A minus sign denotes a negative correlation.

[4] Correlations of less than ± ·10 may not be significant.

3. Comparison of Animal and Money heriots.

The impact of the famine decade on mortality among animal-paying tenants was, at most, half as severe as the impact on money-paying tenants: in the period which followed money heriots again rose while animal heriots fell and became stationary. The divergence of the two series may reflect changes in the relative numbers of substantial tenants and smallholders, as well as divergent mortality rates.

Table III *'Expectation' of life on entry into tenancies on five Winchester manors 1245 to 1348*

	Heriots recorded in period		Expectation of life		
Period	Overall	Animal	Overall	Animal -paying	Money -paying
(1)	(2)	(3)	(4)	(5)	(6)
	—numbers—			—years—	
1245–9	235	189	. .	22	. .
1250–9	239	189	. .	22	. .
1260–9	160	151	. .	28	. .
1270–9	184	130	. .	26	. .
1280–9	342	160	. .	23	. .
1290–9	304	166	. .	25	. .
1300–9	517	307	23	19	30
1310–9	948	439	16	17	16
1320–9	334	171	20*	19	22
1330–9	769	345	20	22	19
1340–8	860	353	18	21	16
1245–69	634	529	. .	24	. .
1270–99	830	556	. .	24	. .
1300–19	1,465	746	20	18	23
1320–48	1,963	869	19	21	19
1245–1299	1,464	1,085	. .	24	. .
1300–1348	3,428	1,615	20	20	20
1245–1348	4,892	2,700	. .	22	. .

This table must be read in the light of section 4 of the Statistical Notes.

* Only this figure can be regarded as an 'expectation' of life in the ordinary sense. The others assume equal numbers at risk throughout, and equal expectations of life on entry among animal-paying and money-paying tenants.

4. 'Expectations' of life—See Table III.

Table III shows the total numbers of heriots recorded in each decade. From 1300 onwards overall 'expectations' of life on assuming the tenancy are included. The overall expectations are got by dividing average annual heriots into 1,725, the total number of heriot-paying tenancies in 1321. The average for the five decades is 20 years.

The shifts of the money heriots before 1295 decided me not to begin the overall series before 1300. On internal evidence, the animal heriots seem to be a statistically consistent series, but the number of the tenancies liable to pay them is not certain. The expectations for animal-paying tenancies are therefore worked out to yield the same average expectation of 20 years over the five decades 1300–1348. This is equivalent to assuming that 48 per cent of the tenancies paid animal heriots as 48 per cent of the recorded heriots were animals. The difference in trend between the numbers of animal and money heriots referred to above is reflected in the figures of expectations, and is illustrated by the expectations for money-paying tenancies, which have been made consistent with those for animal-paying tenancies.

Because of these differences in trend the expectations depend partly on the period used to equate the average expectations. Based on the period 1320 to 1348 the expectancies for animal-paying tenancies would be two per cent less, those for money-paying tenancies two per cent more—and the proportion of tenancies paying animal heriots 46 per cent instead of 48 per cent.

The assumption of equal expectations in the two groups of tenancies is probably false, even allowing for the possibility that money-paying tenants usually took over their plots at an earlier age than animal-paying tenants. Presumably the expectations for animal-paying tenants should all be increased by some unknown factor representing a greater-than-average longevity, and the expectations for money-paying tenancies decreased by a factor of similar magnitude. Almost certainly the factor would be more than five per cent.

Other evidence has suggested that the absolute and relative numbers of tenants liable to different types of heriot were changing during the period, and that animal-paying tenancies diminished while money-paying tenancies, and total tenancies, increased. This would affect the real 'expectations' systematically, those for animal-payers being tilted up at the beginning and down at the end; and conversely for money-payers, and overall. As the extent of the change is still conjectural, and the adjustment needed is straightforward, I have left this to the reader.

5. Grain prices—See Tables I and IV.

The recorded wheat prices often differed from manor to manor. At the beginning of the period the highest average may be double the lowest. In the middle years the greatest differences amount to half the minimum; and at the end to one third. The differences may be caused by sales at different seasons in different manors as well as by local differences in harvests and price levels.

The average price of wheat before 1270 was just under five shillings. Thereafter the normal price seems to have been just over six shillings—i.e. about 25 per cent more. During the second decade of the fourteenth century wheat prices rose much higher, reaching 17 shillings, and the average was nine shillings.

Local prices of different varieties of food-grains are apt to be correlated because they grow in like weather conditions, and because they are partial substitutes. Wheat prices are here used to indicate the level of the grain harvest in general, and it is of interest to consider these prices in relationship to the prices of other grains, as exemplified in Thorold Rogers' data. His figures for the period from 1260 show that wheat prices were more variable than barley, drage, or oats—oats prices being the least variable of the four. Barley prices are the most strongly correlated with those for wheat; suggesting that it was a close substitute (and also reflecting failures of both wheat and barley in cold wet seasons). The correlations between wheat prices and the prices of drage, and oats, which does better in cold or wet years, were generally only about half as good.[1] During the first quarter of the fourteenth century, marked as it was by a series of disastrous harvests, all grain prices are highly correlated with those of wheat; drage and oats evidently serving as substitutes for both wheat and barley. Thereafter the prices of drage and oats fell less than those of wheat and barley.

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[1] 'Half as good' in the sense that twice as much of the total variation in recorded prices is left unexplained.

The correlations are high; but the level of local wheat prices must often be a very misleading indicator of the level of prices for other grains, having moved divergently from other grain prices. Substantial discrepancies of up to two shillings a quarter are likely to have occurred during two or three years in each decade. This limits the value of wheat prices for the present study; but enhances the significance of any correlation between wheat prices and heriots that analysis may disclose.

Table IV *Correlations—direct, partial, and multiple—between prices of selected food grains, 1260 to 1348, based on Thorold Rogers' data*

Type of correlation and kind of grain	1260–70 *	1271–1300	1301–25	1326–48
(1)	(2)	(3)	(4)	(5)
Direct correlations r^2_{ab}				
Wheat and Barley	·02	·81	·86	·84
,, ,, Drage	·00	·60	·87	·72
,, ,, Oats	·01	·66	·89	·69
Barley and Drage	·00	·62	·94	·87
,, ,, Oats	·09	·78	·80	·85
Drage and Oats	·32	·73	·78	·74
Partial correlations $r^2_{ab.cd.}$				
Wheat and Barley	·02	·44	·00	·34
,, ,, Drage	·56	·06	·11	·00
,, ,, Oats	·27	·00	·49	·01
Barley and Drage	·03	·00	·64	·38
,, ,, Oats	·12	·29	·03	·31
Drage and Oats	·33	·30	·02	·00
Multiple correlations $R^2_{a(bc..)}$				
Wheat with barley, drage and oats	·57	·83	·94	·84
Barley with drage and oats	·12	·79	·95	·93
Drage with barley and oats	·34	·73	·95	·87
Oats with barley and drage	·40	·85	·80	·85

In Thorold Rogers the dates appear as 1259 to 1347.
* Data generally scanty: those on drage prices relate to only six of the years before 1271.

6. Heriots and Wheat Prices—see Table II.

Part of the annual variation in the number of heriots must be accidental; and where the averages are small this accidental variation must be rather large in proportion to the annual totals. Moreover the payment of a money heriot was often delayed until after the harvest, and recorded in the next year. Many factors independently reduce correlations between the recorded numbers of heriots and the average recorded prices of wheat.

Nevertheless there is a clear correlation between wheat prices and money heriots, except between 1273 and 1292 and between 1342 and 1348. For the earlier period the money heriot figures are low and subject to sudden shifts: the later period was followed by the Black Death, which seems to have caused exceptionally high mortality among heriot-paying tenants on these manors: 50 per cent at least.

Only in the first quarter of the fourteenth century is there any apparent correlation between wheat prices and the number of animal heriots. This suggests that although the wealthier tenant was immune from the effects of ordinary fluctuations in harvests, failures of harvests as extreme as those of the first quarter of the fourteenth century led to higher deaths even among the more substantial villagers.[1] Apart from this quarter century, variation in the number of animal heriots seems to have been merely accidental.

The variation in the numbers of money heriots is much too great to be discounted in this way, and—in so far as the series can be regarded as statistically comparable—strongly confirms the view that this group was living near the margin of subsistence. The two reapers normally occupied the opposite ends of a demographic see-saw; when the harvest of corn fell the harvest of heriots rose.

7. Conclusion.

The foregoing notes deal only with data so far extracted from the original rolls. From discussion with Professor Postan it is clear that there is still a great deal of information of potential demographic value to be gleaned from this source. It may later be possible to estimate the mortality on these manors with greater confidence and rigor than one can now.

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Reference: J. E. Thorold Rogers, *A History of Agriculture and Prices in England* (Oxford 1866).

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[1] (The partial correlations on) the data suggest that this enhanced mortality may have been due to increased disease in a generation of famines rather than to the direct effect of famine.

THE EARLY GROWTH OF STEAM POWER

By A. E. MUSSON and E. ROBINSON

This paper, based principally on the various collections of Boulton and Watt papers, but using also local sources, manuscript and printed, wherever possible, seeks to answer some limited questions on the production and use of steam engines in the early stages of the Industrial Revolution.[1] The period covered does not extend beyond 1800, and the material has been richest for the 1790's; the area under examination is Lancashire, and more particularly, the Manchester district. Though the period of time and the area chosen may appear small, by comparison with the total extent of steam power in the Industrial Revolution, they are of central importance to the wider story.

The following statement, made by J. Lord in his *Capital and Steam Power* (1923), about the steam engine would probably still be accepted by the majority of historians today:

> From 1775 to 1800 they [i.e. Boulton and Watt] possessed a monopoly of steam-engine construction, and, therefore, their output comprises practically all the engines that were erected in Great Britain before the year 1800. The records of the firm contain the dates, power, and owners of all engines erected, therefore it is comparatively easy to discover which trades employed steam-power, and to what extent.[2]

Interpreted strictly the statement is obviously untrue. Boulton and Watt held a monopoly of construction in those steam engines covered by Watt's patents; they could not prevent the manufacture of Newcomen and Savery engines, and even their own patent rights were not defended without costly legal battles. This, of course, Lord knew quite well, but the slip in wording is interesting because it suggests the way in which his mind was working. Steam-engine construction for him was Boulton and Watt steam-engine construction. The weakness of his statement lies in the words, 'practically all the steam engines'. Is it possible to arrive at a clearer notion of what those words mean? This leads us to Lord's further statement that:

> *It must be borne in mind that the output of Boulton & Watt represents the entire steam-engine building of the country, if not the whole world*; the pirated engines, that caused the firm so much anxiety and litigation, were not great in numbers, and the atmospheric engines, even as improved by Smeaton, were costly and inefficient, and ceased to be erected.[3]

[1] The principal MS. collections used in this paper are the Boulton and Watt Collection, Birmingham Reference Library (B.R.L.), the Matthew Boulton papers in the Assay Office Library, Birmingham (A.O.L.B.), and the Doldowlod MSS. (Dol.), the property of Major David Gibson Watt, M.C., M.P. We have also consulted some papers relating to John Wilkinson and James Stockdale which have recently been deposited in the Lancashire County Record Office, Preston (L.C.R.O.). We are particularly grateful to Major David Gibson Watt, not only for giving us access to his private papers, but also for his friendly hospitality.

[2] Lord, *op. cit.* p. 147.

[3] *Ibid.* p. 166. Our italics.

Here both the pirate engines and the atmospheric engines are dismissed as being unworthy of serious consideration and the Savery engines are not even mentioned. It is in fact a common assumption among historians that the manufacture of Savery engines ceased early in the eighteenth century except for a few examples. Since Boulton and Watt engines were expensive to install,[1] Lord then deduces that the capital available in those industries, such as cotton manufacturing, that employed Boulton and Watt engines must have been large because of the amount of fixed capital invested in these engines. It is important therefore not only for the technological but also for the financial history of the Industrial Revolution that Lord's assumptions should be tested. Thus the questions we wish to attempt to answer are: first, how many engines not covered by Watt's patents were still being erected in Lancashire quite late in the century; and secondly, how many pirate engines were there in Lancashire, and how serious a menace were they to Boulton and Watt's potential market?

I

It is unfortunate that a list of the earliest steam engines in Manchester, left to the Literary and Philosophical Society by George Walker, one of the original members, was destroyed when the Society's library was burnt in an air-raid during the Second World War. Only one item from it has been preserved, quoted in a newspaper account of the donation of Walker's MS.[2] This refers to his examination in September 1788 of a 'Fire engine or steam engine', with a 64 in. cylinder, 'on the old construction' (*i.e.* atmospheric), erected at Shudehill and used 'to raise water', probably for the public supply. A few more early engines are mentioned by other contemporary witnesses. James Ogden stated in 1783 that about the time when the Bridgewater canal was built from Worsley to Manchester, *i.e.* about 1760, 'the collieries nearest *Manchester* in *Newton-lane* were set to work ... then first drained by a steam engine, and scarcely worth getting before'.[3] Other collieries in the Manchester area similarly adopted steam engines for pumping.[4] Ogden also informs us that water for the Manchester reservoirs was 'forced up by an engine near *Ancoats*'.[5] And he refers to Richard Arkwright's cotton mill just then being set up on Shudehill, in which the carding and spinning machines were 'setting to work by a steam engine'.[6] Arkwright's engine, the first application of steam-power to textile spinning in Lancashire, was an atmospheric engine to pump water for an overshot water-wheel.[7]

In addition to these items, we have a few general statements about early steam engines in the Manchester area, some of which seem at first sight to be contradictory. There is Peter Drinkwater's statement in 1789 that there were 'a great number of the common old smoaking engines in and about the town',[1] but against this is John Kennedy's that:

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[1] Robert Mylne giving evidence before a Select Committee of the Commons on Watt's Engine Bill, 12 April 1775, declared that a Watt engine with the same diameter of cylinder as a Newcomen engine would cost twice as much but would do twice as much work. (Minutes, Dol.)

[2] *Manchester Guardian*, 15 April 1870.

[3] [J. Ogden,] *A Description of Manchester ... By a Native of the Town* (1783), pp. 6–7.

[4] Thus in 1774 we find John Porter of Bradford Colliery, Manchester, advertising for sale 'A Good Fire Engine, the Cylinder 32 Inches, with Beam, Pumps, &c.' *Manchester Mercury*, 29 March 1774.

[5] Ogden *op. cit.* p. 13.

[6] *Ibid.* p. 16.

[7] *Patents for Inventions. Abridgments of Specifications relating to the Steam Engine* (1871), Part 1, A.D. 1618–1859, I, 77. A. Ure, *The Cotton Manufacture of Great Britain* (1836), I, 273.

> During the period of ten or fifteen years after Mr Arkwright's first mill was built in 1771 at Cromford, all the principal works were erected on the falls of considerable rivers; no other power than water having then been found practically useful. There were a few exceptions where Newcomen's and Savary's steam engines were tried. But, the principles of these machines being defective and their construction bad, the expense in fuel was great, and the loss occasioned by frequent stoppages was ruinous.[2]

Drinkwater's statement is contemporary with what he describes, while Kennedy's was made some thirty years after the time to which he refers. The two statements are not mutually exclusive. By 1815 the number of steam engines in Manchester was much greater than in 1789, and, to a man living at the later date and prospering in the cotton trade, the provision of steam power in 1789 would by comparison appear scanty and insufficient. In another paper, moreover, Kennedy states that both 'Watt's and Newcomen's steam-engine supplied power for the mule spinner' in the 1790's, and that when he himself improved the mule for fine spinning in about 1793, 'the *power* in this instance was *Savary's*, which was used to raise water upon a water-wheel'.[3]

Some of the first engines in Manchester about which we have any details were on Savery's principles, and one engineer, Joshua Wrigley, seems to have been the best-known maker of this type of engine. Since he first appears in the directories as a pump-maker,[4] it would have been a natural progression for him to manufacture the pumping engines as well. And these engines could be used to pump water for water-wheels, to drive textile or other machinery. Wrigley's engine, we are told,[5] 'usually raised the water about 16 to 20 feet high; and the water descending again, gave motion to an overshot water-wheel. This is Mr. Savery's original project for working mills by his engine . . .'

Several of Wrigley's engines were erected in Manchester and other parts of Lancashire, where they were used 'to impel the machinery of some of the earliest manufactories and cotton-mills in that district'.[6] It is possible that he may have built Arkwright's engine on Shudehill in 1783. In the following year two of Wrigley's engines were erected at Joseph Thackeray's cotton mill at Garrat, Chorlton-on-Medlock—a mill which till then had been worked by water-wheels on the River Medlock and which is said to have been the first cotton mill established in Manchester, but the water power proving insufficient the Wrigley engines were installed.[7] The first had a cylinder of 16 inches diameter and was of about $2\frac{2}{3}$ h.p., the second had a 24 in. cylinder and was of about

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[1] Peter Drinkwater to Boulton and Watt, 3 April 1789, B. R. L. Quoted by W. H. Chaloner in 'Robert Owen, Peter Drinkwater and the early Factory System in Manchester, 1788–1800', *Bulletin of the John Rylands Library*, XXXVII (1954–5), 87.

[2] J. Kennedy, 'Observations on the Rise and Progress of the Cotton Trade in Great Britain, particularly in Lancashire and the Adjoining Counties', read 1815, Manchester Literary and Philosophical Society, in his *Miscellaneous papers* (Manchester, 1849), p. 15.

[3] J. Kennedy, 'A Brief Memoir of Samuel Crompton', read 1830, Manchester Lit. and Phil. Soc. in his *Miscellaneous papers* (Manchester, 1849), pp. 71–72.

[4] Elizabeth Raffald's *Manchester Directory*, 1772: 'Wrigley Joshua, Pump-maker and Bell-hanger, Long Miln-gate'. The name sometimes is spelt 'Rigley'.

[5] J. Farey, *A Treatise on the Steam Engine* (1827), p. 122.

[6] *Ibid.*

[7] *Ibid.* pp. 125 and 662, note (a). Farey's description is based on a contemporary account by John Smeaton, who made a trial of these engines.

5 h.p. The boilers were not well designed by later standards so that the fuel consumption was rather heavy. Wrigley also ran into trouble over smoke from his engines, but was unable to cure it without erecting a very tall chimney that still did not completely solve the problem.[1] Nevertheless he appears to have found a good market for his engines, and not only in Lancashire. We are given a description of one of his Savery engines 'which was erected at Mr. Kier's manufactory, St. Pancras, London, and which worked there for many years, to turn lathes, &c'.[2]

Farey's statements are supported by contemporary witnesses. Aikin, the historian of Manchester, confirms Wrigley's importance as late as 1795, when he describes an engine of Wrigley's manufacture which had a 24 in. cylinder [3] and which may have been the larger engine at Garrat. Aikin declares that Wrigley, 'a common pumpmaker', 'never applied for a patent, but imparted freely what he invented to those who thought proper to employ him'. His high opinion of Wrigley was not shared by James Watt. The first reference to Wrigley's enterprises in Watt's correspondence seems to be in June 1781, when Watt wrote from Cornwall to Matthew Boulton, saying that he had accidentally seen a letter by one of the firm's engineers, Logan Henderson,[4] which mentioned 'some new engine to burn almost no coals and that some person at Manchester wanted him to engage in the business'.[5] Watt never got on with Henderson and suggested that he should be encouraged in this project, but Boulton, always anxious to keep in the firm anyone who could be of any use in engine erecting, simply evaded Watt's point, and replied:

> As to the Manchester schemes I suppose we may add them to the same catalogue in w^{ch} are enrolled all M^{r} Hateleys, M^{r} Wasboroughs, M^{r} Matthews, M^{r} Pintos, M^{r} Jones's, the Spaniards & the Truro Mans & therefore I did not think it necessary to vex you wth nonsense or divert your attention one mom^{t} from the great Cornish object . . . [6]

This Manchester scheme was probably Joshua Wrigley's for driving cotton mills by his modified Savery engine. A little later, in November 1784, Watt was corresponding with Thomas Jordain of Manchester about the erection of a Boulton and Watt engine,[7] but Wrigley persuaded Jordain to let him build the engine instead of Boulton and Watt. At this date Wrigley was in partnership with the Rev. John Derbyshire. The latter had been a journeyman carpenter to John Wilkinson, but became a Methodist preacher, and then, after marrying a rich wife, set up a small foundry. He wasted his wife's fortune, however, and when he enquired of Boulton and Watt for an engine, they refused him because they did not trust his credit.[1] It may have been this which drove him into partnership with Wrigley. These two built some of the early cotton mills powered by Savery engines. Watt did not think very highly of them: he considered one of Wrigley's cotton mills 'most execrable' and reported that Derbyshire had 'again spoiled Parrs Mill at Liverpool'.[2]

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[1] James Watt to Matthew Boulton, 18 August 1785, Boulton and Watt Letter Book (Office), June 1784 to March 1786, B.R.L.

[2] Farey, *op. cit.* pp. 122–5. See also *Nicholson's Philosophical Journal*, I (1797), 419.

[3] J. Aikin, *A Description of the Country from thirty to forty Miles round Manchester* (1795), p. 174.

[4] Lieutenant Logan Henderson, formerly an officer in the marines, joined Boulton and Watt in 1776. He worked mostly in Cornwall and eventually left the firm in 1783.

[5] James Watt (Cosgarne) to Matthew Boulton (Soho), 25 June 1781, Letter Book (Cornwall), June 1781–January 1782, B. R. L. H. W. Dickinson and Rhys Jenkins, *James Watt and the Steam Engine* (1927), p. 299, give the year as 1780.

[6] Matthew Boulton (Soho) to James Watt (Cosgarne), 1 July 1781, Boulton and Watt Collection, Parcel D, B.R.L. Boulton himself dates this letter 1780, and this is followed by Dickinson and Jenkins, *op. cit.* p. 299, but it seems to be a reply to Watt's letter of 25 June 1781. All the people referred to in this letter were rival engineers or infringers of Watt's patent. The list indicates the number of engine-makers active in 1781.

[7] James Watt (Birmingham) to Thomas Jordain (Manchester), 26 November 1784, Boulton and Watt Letter Book (Office) June 1784–March 1786, B. R. L. Jordain does not appear in the Manchester directories.

A month after Wrigley had taken the Jordain order, Boulton and Watt agreed to erect an engine for the Cark Cotton Company,[3] near Lancaster, but Joseph Thackeray, for whom Wrigley had erected the two engines at Garrat, was a partner in the Cark concern and employed Wrigley as his engineer. This prompted Watt to write:

> I learned at Manchester that Mr Thackeray employed one Joshua Wrigley as his Engineer, whom I object to having anything to do with; first because he is not a good workman if I may judge from a sample of his work I saw there. Secondly because he came here twice with people who wanted engines, and one of the times at least persuaded the person that he could put him up a more advantageous Engine on a principle of his own, which he is now about but it is the opinion of everybody that he will beshit himself though he has the Rev^{d} Mr John Derbyshire for his coadjutor, thirdly because having erected an Engine for the s^{d} Mr Thackeray & Comp^{y} the smoke of which poisons the whole neibourhood [*sic*], he came here pimping to find out how to cure the smoke, w^{ch} not succeeding, he has built a chimney 100 feet high. To a man of that stamp I will give no instructions.[4]

He was assured that neither Wrigley nor any other man unacceptable to him would be employed in erecting the engine, and the work therefore proceeded.[5]

Nothing more is heard of Wrigley in Watt's correspondence until June 1789 when the younger Watt wrote to his father about Wrigley's engine at Garrat.[6] Nearly two years later, young James reported that Isaac Perrins, the Boulton and Watt engine erector,[7] had seen one of Wrigley's engines at the top of Deansgate 'where the fire place was upon your smokeless construction'.[8] James Watt junior was anxious to give Wrigley a good trimming for infringing his father's patent; he inspected the fire-place himself and found it almost identical with his father's; but Watt himself felt that it was doubtful whether the courts would uphold his patent for a smokeless fire-place.[9]

When Watt junior wrote again about Wrigley in March 1791, Wrigley had 'orders for 13 Engines for this town & neighbourhood, all of them intended for working Cotton Machinery of one kind or other by the Medium of a Water wheel'.[1] This means that, apart from an unknown number of engines which Wrigley had previously erected, he had on his order books at this date one third of the number of engines erected by Boulton and Watt in the same area by 1800.[2] The sons of Boulton and Watt seem always to have been more alive than their fathers to these threats to the firm's business. To James Watt junior's warnings, his father merely replied: 'While Wrigley goes on with his water wheel engines he will be very harmless, he will hurt none but his customers'. [3] Then a new engineer arrived in Manchester and was said to have entered into partnership with Wrigley. He had designed a new boiler—which Watt junior described in some detail—and had taken out a patent for it.[4] Still his father remained unconcerned: 'The boiler you mention is neither new nor formidable, the effect from the same quantity of fire will be less than in the common boiler & it cannot last long . . .' [5] Nothing that his son could tell him seems to have disturbed his complacency, because he was supremely confident of his engine's superiority in mechanical efficiency over all others.

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[1] James Watt (Birmingham) to Josiah Wedgwood, 18 January 1785, same letter book, B.R.L.

[2] James Watt to Matthew Boulton, 18 August 1785, same letter book, B.R.L.

[3] See below, pp. 11–12.

[4] James Watt (Birmingham) to John Wilkinson, 1 September 1785, Boulton and Watt Letter book (Office), June 1784 to March 1786, B.R.L.

[5] John Wilkinson (Castlehead) to James Watt (Birmingham), 12 September 1785, Box 20, B.R.L.

[6] James Watt junior (Manchester) to James Watt (Birmingham), 21 June 1789, Dol.

[7] See below, p. 434.

[8] James Watt junior (Manchester) to James Watt (Birmingham), 13 March 1791, Dol.

[9] James Watt (Birmingham) to James Watt junior (Manchester), 17 March 1791, B.R.L. The patent, no. 1485, was obtained in 1785 and the plan was followed in the Albion Mills in 1786.

Meanwhile Wrigley seems to have done quite well at this period though his good fortune could not last. James Watt was right in the long term. Joshua Wrigley died in 1810 and his estate was worth less than £40.[6] We last hear of him in the Boulton and Watt correspondence in March 1799 when he was to put up a 'Common Engine' with a thirty-inch cylinder to pump water at the new Calender House of one Horridge.[7] Whether this was one of his Savery engines or a Newcomen engine—the type more usually referred to as a 'common engine'—is not clear.[8] At all events Wrigley had a very long run in the Lancashire engine business.

To Joshua Wrigley's name, as a maker of Savery engines in Manchester, we must join that of Joseph Young, millwright.[9] In September 1790, Watt junior stated that Young:

> has already constructed some engines upon the old plan, and . . . undertakes to erect engines of the power of 4 horses, at little more than £200, including the water wheel which they are to put in motion. These engines of his are upon the original Saverian construction, no piston, but merely a cylinder in which the water rises by means of a vacuum made at the top. He farther promises to engage that these engines shall not burn more coals than yours, and that they shall consume the smoke, which he affirms you have no patent for doing . . . The gross sum which your engines cost at first, startles all the lesser manufacturers here, and it is scarcely possible to make them comprehend the advantages to be derived from a regular motion, from a

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[1] James Watt junior (Manchester) to James Watt (Birmingham), 13 March 1791, Dol.

[2] J. Lord, *op. cit.* p. 179, footnote 2.

[3] James Watt (Birmingham) to James Watt junior (Manchester), 17 March 1791, B.R.L.

[4] James Watt junior (Manchester) to James Watt (Birmingham), 19 June 1791, Dol. The new engineer appears to have been John Roger Teschemacher, who took out Patent no. 1808, 24 May 1791.

[5] James Watt (Birmingham) to James Watt junior (Manchester), 3 July 1791, B.R.L.

[6] *Lancs. and Chesh. Record Soc. Publications*, LXIII, *Index to Wills at Chester, 1801–1810*, Part II, M to Z.

[7] James Lawson (Manchester) to Boulton and Watt, 7 March 1799, Parcel C, B.R.L.

[8] There is ambiguity because in 1789 we find James Watt junior referring to one of Wrigley's Savery engines at Garrat as a 'common engine'. James Watt junior (Manchester) to James Watt (Birmingham), 21 June 1789, Dol.

[9] Edmond Holme's *Manchester and Salford Directory*, 1788: 'Young, Joseph, millwright, Cupid's alley'; later, according to Scholes's *Manchester and Salford Directory*, 1797, of Young Street.

> machine liable to a few repairs, and from an annual saving of fuel, when weighed against 2 or 300£ more of ready cash.[1]

This attitude towards the cost of Boulton and Watt engines appears to have been very common among the smaller Lancashire mill-owners. Even when they were convinced of the greater efficiency of the Boulton and Watt engine, they would not meet the extra cost. They would take advantage of the engine by piracy if they could, but it seems to have been only the larger mills which were ready to invest so much capital in an engine. Thus in 1790 Watt junior failed to obtain an order for a Boulton and Watt engine from Messrs. Marshall and Reynolds, Manchester cotton manufacturers, because he was forestalled by Young with a cheaper Saverian engine and water-wheel.[2] It is not surprising to find Boulton and Watt acknowledging in June 1791 that 'Manchester has been backward in adopting our engines'.[3]

From this evidence about Young's and Wrigley's business, we can see that the transition from Savery engines was much slower than has been generally supposed. Savery's engine, we have very recently been told by such an authority as the late Dr. H. W. Dickinson, 'fell into disuse early in the eighteenth century'.[4] Yet as late as May 1796 we hear of a Manchester cotton spinning firm, Messrs. Nightingale, Harris & Co., still having 'a Savary's [engine] which now turns their works', but whose replacement by a Boulton and Watt they were considering.[5] Wrigley and Young between them evidently had a considerable output of engines, which may, in fact, have rivalled the number erected by Boulton and Watt in the Manchester area before 1800, though the latter were ousting them in the 1790's.

II

We have now to consider the manufacture of Newcomen engines in Manchester. The atmospheric engine was, of course, the main source of steam power before Watt's improved steam-engine began to replace it. It had the same uses as any pumping engine—to pump water from pits or to supply waterworks or to work a water-wheel—but, like Watt's engine, and this is sometimes overlooked, it could be adapted to a rotative motion by means of a crank and fly-wheel, and many were so adapted after about 1780.[6] It is true that its motion was less regular than that of Watt's engine, and the fuel consumption was greater, but in many operations, such as winding coal from pits, grinding corn, and crushing seeds, these drawbacks were not considered important. About the years 1790–93 when the amount of mule-spinning increased, with the application of Watt's double-acting rotative engine, large numbers of atmospheric engines were also made for turning mills in Lancashire. To try to compete with the regular motion of Watt's engine, the makers of Newcomen engines themselves devised a double-acting atmospheric engine, with two cylinders whose pistons acted alternately on the same crank and flywheel.[1] According to Farey, the two principal firms making such engines were James Bateman and William Sherratt of Manchester and Francis Thompson of Ashover in Derbyshire.[2] Not much is known of Francis Thompson's activities in Manchester,[3] but a good deal more about those of Bateman and Sherratt, who were Boulton and Watt's main competitors in this area. Aikin's contemporary account shows their importance:

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[1] James Watt junior (Manchester) to James Watt (Birmingham), 30 September 1790, Dol.

[2] James Watt junior (Manchester) to James Watt (Birmingham), 30 September and 3 November 1790, Dol.

[3] Boulton and Watt (Birmingham) to T. Cooper (Manchester), 7 June 1791, Boulton and Watt Letter Book (Office), December 1790–August 1793, B.R.L.

[4] H. W. Dickinson, 'The Steam-Engine to 1830', in C. Singer, E. J. Holmyard, A. R. Hall, and T. I. Williams, *A History of Technology*, Vol. IV, *The Industrial Revolution c. 1750 to c. 1850* (1958), p. 173.

[5] M. R. Boulton (Manchester) to J. Southern (Birmingham), recd. 19 May 1796, B.R.L.

[6] Farey, *op. cit.* pp. 406–422 and 658, has a wealth of information on Newcomen engines adapted to rotatory motion. See also James Pickard's, of Birmingham, patent no. 1263, dated 23 August 1780, 'for a new method of applying steam-engines, commonly called fire-engines, to the turning of wheels; whereby a rotative motion, or motion round an axis, is performed, and the power of the engine is more immediately and fully applied . . . than by the intervention of a water wheel'. Watt alleged that this application of the crank was one of his inventions but was stolen by a workman at Soho. Dickinson and Jenkins, *op. cit.* pp. 148–56.

> A considerable iron foundry is established in Salford, in which are cast most of the articles wanted in Manchester and its neighbourhood, consisting chiefly of large cast wheels for the cotton machines; cylinders, boilers, and pipes for steam engines; cast ovens, and grates of all sizes. This work belongs to Bateman and Sharrard . . . Mr Sharrard is a very ingenious and able engineer, who has improved upon and brought the steam engine to great perfection. *Most of those that are used and set up in and about Manchester are of their make and fitting up* . . . They are now used in cotton mills, and for every purpose of the water wheel, where a stream is not to be got, and for winding up coals from a great depth in the coal pits, which is performed with a quietness and ease not to be conceived.
>
> *Some few are also erected in this neighbourhood by Messrs. Bolton and Watts* [*sic*] *of Birmingham*, who have far excelled all others in their improvement of the steam engine . . . [4]

Even allowing for a little local patriotism, it is surely clear from this passage that in 1795 Bateman and Sherratt engines outnumbered Boulton and Watt engines in the Manchester area.

James Bateman first appears in the Manchester directory for 1773 as the partner of Walter Wilson, ironmonger, 24 Deansgate.[1] By 1781 he had started up as an ironmonger in Salford and seven years later his enterprises had ramified considerably: James Bateman and Company, ironmongers, Deansgate; iron founder, Water Street, Salford; iron forger, Collyhurst; iron founder and forger, Dukinfield.[2] In the 1792 and 1794 directories he appears in partnership with William Sherratt as an iron-founder at 7 Hardman Street, Salford.[3] He also appears later on as a coal merchant.[4] Bateman's gradual extension of his engineering activities enabled him to produce a wide range of castings and forged metal goods. In January 1782 he inserted a long advertisement in the *Manchester Mercury* informing the public that he had lately erected an iron foundry (probably that in Water St.) and had begun to manufacture an astonishing variety of cast-iron goods, including stoves and grates, pots and pans, gates and railings, weights, iron wheels, spindles, cog-wheels, shafts, pinions, and rollers for carding and spinning machines, rollers for print-works, malt-works, and rolling and slitting mills, calender bowls, etc.[5] Soon afterwards he appears to have acquired another foundry, at Dukinfield. In 1782–3 Richard Crowder, of Dukinfield Lodge, was offering a furnace and foundry for sale,[6] and about the same time we find Bateman writing that he has at last agreed with Mr Astley for his iron furnace and that Mr John Taylor was to be concerned with him in it.[7] It is uncertain whether these are references to the same furnace, but Bateman was certainly at Dukinfield five years later.[8] Thus he provided himself with all the plant necessary for producing large engine castings.

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[1] Farey, *op. cit.* pp. 658–64.

[2] *Ibid.* p. 422. Some of their engines were still being used in 1825. John Wilkinson, the famous ironmaster, also put up a few engines in Lancashire, not atmospheric but piracies of Watt's engine. Peter Ewart, of Boulton and Watt, whilst in the neighbourhood of St. Helens, saw a coal-winding engine of Wilkinson's make which he described as having 'a 14 in. Cylinder & a 3 feet stroke, worked double, with a rotative motion the same as those at the Dale only the working gear was very different'. (Peter Ewart, from Raikes, near Bolton, to John Southern, Soho, 15 February 1791, B.R.L. For Coalbrookdale engines see A. Raistrick, *Dynasty of Iron Founders* [1953], chap. 9). This was apparently the pirate engine built in 1790 for Nicholas Ashton's colliery near St. Helens. Wilkinson erected another pirate engine in the same area in 1791 for 'Michael Hughes Esq. Colliery at Ravenshead, copperwork (of the Parys Mine Co.) between Prescot and Wigan'. ('List of Engines made by John Wilkinson', drawn up by James Watt junior, Sept. 1795, B.R.L. We are indebted to Dr W. H. Chaloner for a copy of this list. See also T. C. Barker and J. R. Harris, *A Merseyside Town in the Industrial Revolution. St. Helens 1750–1900* [Liverpool, 1954], pp. 85–86.)

[3] Farey, *op. cit.* p. 662, states that '. . . Mr Thompson also made a few small (double-acting atmospheric) engines, with 27 inch cylinders. Two of the cotton mills in Manchester which are now on the largest scale, were commenced in 1794, with those engines, but being found insufficient for the increasing work, they were replaced by larger engines by Messrs. Boulton and Watt. Mr Thompson's engines were found to be as difficult to keep in order as Mr Watt's and very inferior in performance; hence, they were only adopted in a few instances, and have long since been laid aside'. See also Dickinson and Jenkins, *op. cit.* pp. 312–3.

[4] Aikin, *op. cit.* pp. 176–78. Our italics.

Up to this time, Bateman does not appear to have been making engines, since on 15 July 1782 Matthew Boulton wrote to him about an engine which Bateman wanted. This was for his own works, to be used in 'Boreing of small working barrells ... also turning a Grinding Stone ... also to turn two Strong Turning Lathes ... & likewise to blow a dragon Furnice ...'[9] Bateman also showed a great deal of interest in the general commercial possibilities of the Boulton and Watt engine in the Lancashire cotton industry, supplying Boulton with information about cotton mills, and asking whether he might not get from Boulton a model of the engine with instructions for its working, so that he could introduce it in the right quarters.[10] In the light of later developments, this can hardly have been ingenuous. On 16 July 1782, Boulton supplied Bateman with complete details of a Boulton and Watt pumping engine,[11] and it was probably with this letter that he sent his draft of the advantages of Watt engines in working cotton mills, claiming for them greater regularity, more equable motion, economy of fuel consumption, freedom from interruption by floods or frosts, and general adaptability.[1] Bateman also sent his partner, John Taylor, to Soho to examine the Boulton and Watt engine, and promised information about Arkwright's mill.[2] Then, for some reason, the deal was not clinched, and Bateman did not buy the engine, though no doubt he had gained a good deal of useful information. At this stage, however, there does not seem to have been any rupture in friendly relations, for there is a note in James Watt's pocket diary that he called on Bateman on 13 August 1785 and saw round his works.[3]

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[1] Raffald's *Directory*, 1773. Some details of Bateman's life are given in F. S. Stancliffe, *John Shaw's, 1793–1938* (1938), *passim*, and in a MS. article by the same author privately circulated to the members of John Shaw's Club, 'James Bateman, the Ironmonger'.

[2] Holme's *Directory*, 1788.

[3] Scholes's *Manchester and Salford Directory*, 1792 and 1794. The partnership appears to have been formed a few years earlier. See below, p. 428.

[4] Dean's *Manchester and Salford Directory*, 1808–9: 'Bateman and Sherratt, coal merchants, Mill-field, Gt. Ancoats-st'.

[5] *Manchester Mercury*, 1 January 1782.

[6] *Ibid.* 9 July 1782 and 29 April 1783.

[7] James Bateman (Manchester) to Jonathan Scale (Soho), 6 July 1783, A.O.L.B.

[8] Holme's *Directory*, 1788.

[9] Matthew Boulton (Soho) to James Bateman (Manchester), 15 July 1782, A.O.L.B. This letter clearly refers to the Salford foundry.

[10] James Bateman (Manchester) to Matthew Boulton (Soho), 11 July 1782, A.O.L.B.

[11] A.O.L.B.

As with Joshua Wrigley, there is a break in the information about Bateman until James Watt junior arrives in Manchester. In April 1789 Watt junior was negotiating with a leading Manchester cotton spinner, Peter Drinkwater, to sell him a Boulton and Watt engine.[4] James Bateman was also anxious to get the order and, making Drinkwater an uninvited visit, gave him an estimate for an engine of his own manufacture. Drinkwater would have nothing to do with Bateman and 'even told him that he would not have one of his engines if he would make him a present of it'.[5] Just a little earlier that year, in February, Watt junior visited a Bateman engine at the works of Moss, a dyer,[6] situated out of Manchester near St. John's Church. This engine was considered the best in the Manchester district at that time, though Watt junior did not think highly of it.

> It is a 34 Inch diam^{r} 7 feet Stroke, goes generally about 16 Strokes a Minute . . . It grinds the materials for dying, scrapes the logwood & turns the dressing and washing machines: the rotatory motion, *as in all other engines here*, is applied upon M^{r} Wilkinson's plan.[7]

Drinkwater's Boulton and Watt engine is generally said to have been the first direct application of rotary steam power to cotton spinning in Manchester; but it is evident from this letter that Bateman may have so applied Newcomen engines, without using a water wheel, before this date. Young James Watt pointed out what a brisk active man Bateman was, 'perpetually on the look out', praising his own engines at the expense of Boulton and Watt's, and a dangerous competitor.[8] Bateman even had Soho men in his employ, such as John Varley, who had been got a job by James Lawson on John Lees's engine, but had gone instead to Drinkwater's, which he eventually left to work for Bateman.[9] This fellow proved to be most important to Bateman's business.

In June 1789, Watt junior reported that another Bateman engine had been erected by Messrs. Joseph Thackeray and John Whitehead, cotton spinners, at Garrat, to assist the earlier one of Wrigley's construction.[10] It must have been specially galling to Boulton and Watt to lose an order from a man who had already bought one of their engines, erected in 1786 for the Cark Cotton Company in which Thackeray was also a partner.[1] Yet still James Watt remained unmoved:

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[1] 'Description of a Free Mill to work a Cotten or Silk Mill', Matthew Boulton Letter Book, 1781–83, A.O.L.B., with a pencil note in Boulton's hand, 'probably sent to Bateman c. July 1782'.

[2] James Bateman (Manchester) to Jonathan Scale (Soho), 6 July 1873, A.O.L.B.

[3] Dol.

[4] Chaloner, *op. cit.* pp. 87–88.

[5] James Watt junior (Manchester) to James Watt (Birmingham), 4 April 1789, Dol. This is included among some letters at Doldowlod on this subject to which Dr Chaloner did not have access at the time of writing his article.

[6] Probably of 'Moss and Rothwell, dyers, Water street', Lewis's *Manchester Directory* (1788).

[7] James Watt junior (Manchester) to James Watt (Birmingham), 1 February 1789, Dol. (Our italics). He had also seen a cast iron boiler made by Bateman for another steam engine, about 8 feet diameter and 5 feet deep, and in two parts intended to be screwed together. There is a sketch of its shape.

[8] James Watt junior (Manchester) to James Watt (Birmingham), 25 May 1789, Dol.

[9] James Lawson (Manchester) to James Watt junior, 3 March 1796, B.R.L.

[10] James Watt junior (Manchester) to James Watt (Birmingham), 21 June 1789, Dol.

> In respect to M^r^ Bateman's calumny & efforts to extend his business at our expence we despise them & do not wish to procure business by sounding our own praises if the merit of our Engines does not speak for us we shall be silent, and take such business as comes to us unsollicited / by the by you are guilty of an impropriety in speaking of Bateman & Wilson without putting *Mr* to their names, always speak of your opponents respectfully remember that "*Suaviter in modo fortiter in re*".[2]

This might have been all very well in some circumstances, but Watt's opponents were learning fast and were unscrupulous. Renegade Soho workmen were coming to Manchester and taking employment as engine men and thus providing a pool of skilled labour. The new Bateman engine at Garrat was tended after September 1791 by Thomas Thorneycroft who had worked on Boulton and Watt engines,[3] and there were several other such men in and about Manchester.[4] By this time Bateman had entered into partnership with William Sherratt,[5] who, according to Aikin, was possessed of considerable engineering ability, particularly in the manufacture of steam engines. In 1791 their productive capacity was greatly increased by the purchase of land in Hardman Street, Salford, for the establishment of a new foundry.[6] They were left to develop and extend their engine business until 1796 when Boulton and Watt finally joined battle with them because they were infringing Watt's patents.

We must now retrace our steps a little before discussing the legal battle over piracies in order to recount what happened at Cark where a Boulton and Watt engine was built in 1786. The order was given to Boulton and Watt, against the advice of some of the partners who wanted a Newcomen engine, through the influence of James and Fletcher Stockdale, and their friend, John Wilkinson, the iron founder.[7] A further decisive influence had been a copy of John Smeaton's report on the Soho engine at Pateley Bridge.[8] Watt gave a quotation for an engine costing between £1,000 and £1,100,[9] but was not anxious to do the job, as he did 'not above half approve of Manchester men'.[10] The engine did not actually begin to work until a year later, on 18 September 1786, mainly because Boulton and Watt did not have an engine erector free until August 1786. James and Fletcher Stockdale became increasingly disconcerted by this delay, which caused the firm considerable loss.[1] It is true that when the engine was set in motion the company were pleased, and some small trouble with it in July 1787 was soon put to rights, but the engine was expensive and the long delay in erecting it did no good to Boulton and Watt's reputation.

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[1] See below, pp. 428–29.

[2] James Watt (Birmingham) to James Watt junior (Manchester), 16 June 1789, B.R.L.

[3] Affidavit by Thomas Thorneycroft of Albury, 22 February 1796, Boulton and Watt Collection, Packet C, B.R.L.

[4] In 1796, for example, we hear of several 'discarded Sohoites' being employed in Manchester M. R. Boulton (Manchester) to J. Southern (Soho), 18 June 1796, B.R.L.

[5] They were associated together by 1788, when prospective lessees of a 'Water-Works' at Ashton Mills were told to apply for particulars to 'Mr Bateman, Ironmonger, in Manchester. or Mr Sherratt, at Duckenfield Furnace'. *Manchester Mercury*, 12 February 1788.

[6] Deeds in the possession of Messrs. Mather and Platt, Ltd., whose present-day Salford Ironworks is in direct line of descent from the original Hardman Street foundry of Bateman and Sherratt.

[7] James Stockdale (Cark) to James Watt (Birmingham), 11 July 1785, M. IV. S, B.R.L.; John Wilkinson (Castlehead) to James Watt (Birmingham), 24 August 1785, Box 20, B.R.L.

[8] James Stockdale (Cark) to James Watt (Birmingham), 11 July 1785, M. IV. S, B.R.L.

[9] James Watt (Birmingham) to James Stockdale (Cark), 11 July 1785, Boulton and Watt Letter Book (Office), July 1784 to March 1786, B.R.L.

[10] James Watt (Birmingham) to John Wilkinson (Castlehead), 1 September 1785, same letter book, B.R.L.

In 1789–90, therefore, when the Cark Company needed more power, they were doubtful about purchasing another Boulton and Watt engine. First they decided against it,[2] but then re-opened negotiations through John Wilkinson. Wilkinson, however, turned traitor on Boulton and Watt, as he had already done by his piracies of their engine.[3] He wrote to Stockdale saying that Boulton and Watt had shown so much indifference to the Cark proposal that he advised them to go elsewhere, and that he had a man called Rowe who was just then at Bersham erecting a new fire engine of his own invention, for which he had recently taken out a patent.[4] 'If it should be found to answer there will be no difficulty or delays on this Score—nor will there be any charge for the Patents that you will have any objection to'. Stockdale therefore ordered Rowe's engine for Cark, but had to wait for it as long as for the Boulton and Watt engine. By April 1791, the engine parts had still not been despatched from Chester,[5] and even when the engine was erected it proved to be a complete failure and had to be replaced.[6] It was replaced, however, not by a Boulton and Watt engine but by a Bateman and Sherratt engine pirating Watt's principles.

III

For many years Boulton and Watt took few positive steps to defend themselves against piracies, confident of the superior efficiency of their own engine.[7] At last, however, when their Lancashire customers pointed to the infringers in the area and complained about paying premiums for what others enjoyed for nothing, Boulton and Watt were forced to take action.[8] Bateman and Sherratt, it appears, took to piracy because of the proved inferiority of their engines to those of Boulton and Watt. Their single-acting atmospheric engines were greatly inferior to Watt's double-acting engine for rotary motion. As Farey points out, 'for giving an uninterrupted motion to mills, a double or continuous action is of the utmost consequence to the regularity of the motion'.[9] The old type of atmospheric engine served well enough for pumping, winding coals, etc., but was not suitable for mule-spinning, so the makers were obliged to contrive a double-acting, two-cylinder atmospheric engine. At first, apparently, Bateman and Sherratt did not infringe Watt's patent, but effected condensation, as in the old engines, by injecting cold water into the cylinders. This, of course, involved heavy costs in coal consumption, so they soon began deliberately to pirate Watt's separate condenser and his air pump for exhausting the cylinders.

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[1] Fletcher Stockdale (Cark) to James Watt (Birmingham), 18 July 1786, M. IV. S, B.R.L.

[2] James Watt (Birmingham) to James Watt junior (Manchester), 16 June 1789, B.R.L.

[3] T. S. Ashton, *Iron and Steel in the Industrial Revolution* (2nd. edn. 1951), pp. 79–80. See also above p. 425. n. 2. The full extent of Wilkinson's piracies is shown in the 'List of Engines made by John Wilkinson', drawn up by James Watt junior in September 1795, B.R.L.

[4] John Wilkinson (London) to Mr Stockdale (Cark), 2 August 1790, L.C.R.O. The 'Rowe' named must have been John Westaway Rowe, whose son, William Rowe, worked for Wilkinson as engineer and surveyor. See A. N. Palmer, 'John Wilkinson and the Old Bersham Iron Works', *Transactions of the Honourable Society of Cymmrodorion*, Session 1897–98, p. 37. See also J. W. Rowe's Patent, No. 1749, dated 29 April 1790, for a semi-rotative engine.

[5] John Wilkinson (Bersham) to James Stockdale (Cark), 6 April 1791, L.C.R.O. See also Wilkinson's letter from Broseley, 25 February 1791, L.C.R.O.

[6] James Watt (Birmingham) to James Watt junior (London), 2 June 1796, Boulton and Watt Letter Book (Office), September 1795 to August 1796, B.R.L. This letter book is hereafter referred to as 'Letter Book A'.

[7] See J. Muirhead, *Life of James Watt* (1858), pp. 401–02.

[8] M. R. Boulton to A. Weston, 23 February 1796, Letter Book A, B.R.L.

[9] *Op. cit.* p. 427.

The generals in charge of the battle against the Manchester pirates were James Watt junior and Matthew Robinson Boulton, who, at the beginning of 1796, had just succeeded in bringing John Sturges and Co. (Bowling Ironworks) and two other Leeds firms to heel for four atmospheric engines which infringed Watt's patent.[1] One of their informants in the Leeds battle was their old engine erector, Isaac Perrins, and it was probably he who set them on the track of the Lancashire pirates. Then Peter Ewart fell in with Thomas Thorneycroft, the former Boulton and Watt engine erector, who gave evidence of a Bateman and Sherratt engine which he had helped to erect in 1792 and which infringed Watt's patent by using an air pump and a condenser. This engine was built for Joseph Thackeray at Garrat.[2] It was actually put up by Richard Bradley (formerly coachman to Thomas Walker, cotton merchant, of Manchester), who appears to have become a partner in both the Garrat and Cark concerns. He was assisted in the construction of the engine by being shown the drawings of a Boulton and Watt engine (belonging to Barrow, Lees and Co.) at Werneth Colliery, and his informant was Thomas Livesey of that firm. The engine had two open-mouthed cylinders working a wheel placed between them, but instead of a condenser and air pump to each as in Maberley's pirated engine, Thackeray's and Bradley's engine had one of larger size for both cylinders.[3] Though Bateman and Sherratt were said by Thorneycroft not to have known fully about the air pump and condenser, they had inspected the Garrat engine as soon as it was set to work and must therefore have been aware of the infringement. And Thackeray, who later disclaimed any knowledge of Watt's patent, paid Thorneycroft's father a guinea a week to keep people out of the engine house.[4]

In face of this unscrupulous attitude, James Watt junior and Matthew Robinson Boulton organized a complete system of espionage,[5] in which James Lawson, disguised as a jockey, played a great part. From Thomas Thorneycroft, Thomas Livesey, Isaac Perrins, John Varley and others, Boulton and

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[1] Dickinson and Jenkins, *op. cit.* p. 320.

[2] M. R. Boulton (Soho) to James Watt (Manchester), 22 February 1796, B.R.L. The Garrat mill is particularly interesting in the history of mechanical power in the cotton industry. Aikin (writing in 1795) states that 'above thirty years since' a Mr Gartside built a factory at Garrethall in which he attempted to work a number of swivel-looms 'with a capital water-wheel' on the River Medlock. The attempt proved unsuccessful, however, and the mill was converted to cotton spinning (*op. cit.* p. 174). According to Farey (*op. cit.* p. 662, note) it was the first cotton mill established in Manchester. In 1784, however, the water power being found insufficient, two Savery engines were erected for it by Joshua Wrigley (see above, p. 420). Further power was obtained in 1789 by the erection of a Bateman engine (see above, p. 427), and then in 1792 the pirate engine was erected, a double-acting atmospheric engine, which, after being compounded for, as we shall see, in 1796, was still in use over thirty years later.

[3] M. R. Boulton to A. Weston, 23 February 1796, Letter Book A, B.R.L. For a detailed technical description of this engine, see Farey, *op. cit.* pp. 662–5. For Maberley's engine, see Dickinson and Jenkins, *op. cit.* p. 307.

[4] M. R. Boulton to A. Weston, 24 February 1796, Letter Book A, B.R.L.

[5] James Watt junior (Soho) to A. Weston (London), 29 February 1796, Letter Book A, B.R.L.

Watt got to know all the pirate engines sold by Bateman and Sherratt.[1] While Boulton and Watt's solicitors in London prepared to ask the Court of Chancery for injunctions against the pirates, the team of spies in Lancashire collected affidavits and inspected all the pirate engines, keeping their whole investigation as close a secret as they could, 'until the Injunction like the exterminating angel, swoops down upon them, and Mercy they shall have none'.[2] Perrins gave information about the engines which he knew of and then brought over John Varley, who had been working on the air pumps and condensers for Bateman and Sherratt and was therefore able to supply an almost complete list.[3] This was supplemented by the skilful detective work of James Lawson, who travelled all over Lancashire to places where pirate engines were reported and succeeded in inspecting them personally.[4] These investigations produced copious information about the engines constructed by Bateman and Sherratt for the following firms: [5]

1. Joseph Thackeray and John Whitehead, cotton spinners, Garrat, Manchester. Rotative engine, erected by Richard Bradley, commenced working August 1792; two cylinders, 36″ diam., 5 ft. stroke, 36 strokes per min; estimated by Boulton and Watt to be of 46.5 h.p. at 21.4 strokes per min.[6]
2. Thackeray, Stockdale & Co., cotton spinners, Cark, near Lancaster. Double engine, with 36″ cylinders, exactly like the Garrat one, and also erected by Richard Bradley; commenced working February 1794.
3. James Drury, Middleton Colliery, near Manchester. Pumping engine, single cylinder, 48″ diam., 7 ft. stroke; commenced working January 1795. Described by Lawson as 'Mr Sherrats first', meaning apparently the first pirate engine entirely constructed and erected by Bateman and Sherratt.
4. Sir George Warren, colliery at Bullock's Smithy (modern Hazel Grove), near Poynton, Cheshire. Pumping engine, single cylinder, 41″ diam., 7 ft. stroke; commenced working August 1795.[7]
5. Thomas Watson, of Watson, Fielding, Meyers & Co., calico printers, Preston. Two cylinders, 18″ diam., 3½ ft. stroke; commenced working September 1795. Bateman and Sherratt were also in process of erecting another pirate engine for this firm, in place of a 'common engine' previously erected by them.
6. Lord Derby, at Preston; purpose not stated. Two cylinders, 19″ diam., 3½ ft. stroke, said to be of 17 h.p.; commenced working February 1796.
7. Peel, Yates & Co., Burnley, probably for calico printing. Two cylinders, 21″ diam., 3½ ft. stroke; commenced working February 1796.
8. James Carlisle, Bolton; purpose not stated. Single cylinder, 24″ diam., 4 ft. stroke; commenced working February 1796.
9. John Goodier, fustian calenderer, Bank St., Manchester. One cylinder, 18″ diam., 3 ft. stroke, said to be of 6 h.p.; commenced working March 1796.

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[1] The details of this process, though fascinating, are too involved for us to deal with here.

[2] James Watt junior to James Lawson, 17 March 1796, Letter Book A, B.R.L.

[3] James Lawson (Manchester) to James Watt junior, 3, 15, 17 March 1796, B.R.L.

[4] See letters from James Lawson to James Watt junior, March 1796, B.R.L.

[5] Among the mass of correspondence on this subject, a letter from M. R. Boulton (Manchester) to James Watt, 6 June 1796, B.R.L. is particularly informative.

[6] Farey gives somewhat different details: 2 cylinders, 36″ diam. 4 ft. stroke, 40 strokes per min. 70 h.p.; but at 30 strokes per min. 45 h.p. He is confused about the date, stating in one place (p. 427, note) 'about 1790', and in another (p. 662) 'about 1794'. This engine was still in use (1825) when Farey wrote.

[7] For further information on this engine, see W. H. Chaloner, 'The Cheshire Activities of Matthew Boulton and James Watt, of Soho, near Birmingham, 1776–1817', *Trans. of the Lancs. and Chesh. Antiq. Soc.* LXI (1949), 129–31.

10. Bateman & Sherratt, ironfounders, Salford. Single cylinder, 24″ diam., 4 ft. stroke; commenced working March 1796.

11. Daniel Lees, of Barrow, Lees & Co., Werneth Colliery, near Oldham. Engine in process of erection by Thomas Livesey, two cylinders, 27″ diam., 4 ft. stroke.

12. Daniel K. Burton, calico printer, Port St., Manchester. Engine in process of erection, two cylinders, 16″ diam., 3 ft. stroke.

13. James Mort, calenderer, 8 Tib St., Manchester.[1] Engine in process of erection, said to be 'part of his own contrivance a little perfected by the assistance of T. Livesey', but parts supplied by Bateman & Sherratt; two cylinders, 16″ diam.

14. Mr. Crossley, Manchester.[2] Lawson reported this engine 'about to be erected near Messrs. Owen & Co., with two Cylinders which I have seen lying on the spot'. No further reference; perhaps abandoned.

15. Mr. Rigby, Arding or Harwarding (Hawarden), between Holywell and Chester; for a boring mill. This engine, of unknown size, was said by Varley to have a 'close toped cylinder & every thing the same as B. & W.'s double Engines', but there is no other reference to it in the correspondence.

16. Lord Penrhyn's estate in the West Indies; Bateman and Sherratt pirate engine said by Varley to have been shipped from Liverpool, but no further information.

In the above list we have definite evidence regarding the construction by Bateman and Sherratt of sixteen engines (firms 1–14), though one or two may not have been completed. To these perhaps may be added two further engines (firms 15 and 16). All of these, both single and double cylinder engines, with the exception of Watson's first, a common engine, pirated Watt's separate condenser and air-pump. Varley also gave information that Bateman and Sherratt were proceeding with the construction of four new engines with air pumps, though he did not know where they were going. Later on, however, he reported that work on these engines had been stopped; perhaps they were converted to the ordinary atmospheric type, since Boulton and Watt refused to give licences for Bateman and Sherratt to manufacture any new engines utilising the separate condenser and air-pump.[3]

In addition to all this evidence about piracies, we have come across information in this correspondence of a few ordinary atmospheric engines made by Bateman and Sherratt during these years. There was one built for a Mr Norton, dyer, of Salford, and three for Messrs. J. & S. Horrocks, cotton spinners, Preston, one of which had been working 'some years', while the other two were still erecting (one pirating Watt's parallel motion). There is also other evidence of 'common' engines erected by Bateman and Sherratt about this time. One of their engines, 'which has never been used', was advertised for sale early in 1794 in a cotton-spinning mill 'at the top of Fleet-street, Deansgate'.[4] Richard Ainsworth, cotton spinner, Bolton, had an atmospheric engine built in about 1794,[5] and Mr Cradock, of Fold's Colliery, Little Bolton, was in

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[1] Mort had previously enquired about a Boulton and Watt engine, but on discovering the cost stated that 'he could not raise the money being a poor man', though he offered to pay by instalments. (J. Lawson, Manchester, to J. Watt junior, Soho, 19 March 1795, Box 38, B.R.L. and J. Watt junior, Soho, to Jas. Mort, Manchester, 28 September, 1795, Letter Book A, B.R.L.) Here again we have evidence of a small firm's unwillingness or inability to meet the comparatively high cost of a Boulton and Watt engine.

[2] There are several Crossleys, cotton manufacturers, in the 1794 Manchester directory.

[3] See below, p. 435.

[4] *Manchester Mercury*, 11 February 1794.

[5] James Watt junior (Salford) to M. R. Boulton (Soho), 5 June 1798, B.R.L.

September 1795 offering the lease of a new Bateman and Sherratt engine, of 20 h.p.[1] What appears to have been the oldest surviving Bateman engine was found in 1885, by a great grandson of James Bateman, still working as a mine-pump at Talke-o'-th'-Hill in Staffordshire, bearing Bateman's name and the date 1791.[2] All together, we have here references to twenty-nine engines built or being built by Bateman and Sherratt between 1791–96, and there were others. Farey tells us, for example, that 'some' of their engines were sent to London, 'one or two' going to breweries.[3]

Injunctions were eventually obtained against Bateman and Sherratt, Thackeray and Bradley, and also Watson of Preston, on 2 May 1796, and though James Stockdale was not mentioned in the injunction, both the Garrat and the Cark engines were ordered to be stopped. There is not sufficient space here to deal with all the twistings and turnings adopted by Boulton and Watt's enemies. Suffice it to say the Salford, Garrat and Cark engines were all worked in defiance of the injunction until a writ of attachment was issued against Thackeray which brought him to his senses, with the help of a little encouragement from William Wilkinson and James Stockdale. Before they concluded peace Bateman and Sherratt had converted their engine back to a common engine. Thackeray did the same, but, in the words of James Watt, 'The Chief Justice in this affair was the Engine itself which refused to drive the machinery without the Condenser'.[4]

The terms of peace with Bateman and Sherratt were just but severe: (i) Bateman and Sherratt were to pay the premiums of their own engine with interest; (ii) they were to deposit their bond for £4,000 as a security against further infringements; (iii) they were to furnish an accurate list of the engines constructed upon Watt's patent principles, with the names of the purchasers, the dimensions of the engines, etc.; (iv) they were to pay Boulton and Watt's costs and expenses; and (v) Boulton and Watt were to have liberty to inspect their engines at all times.[5] On 3 June 1796 Thackeray capitulated also. By the middle of August 1796 all the pirates had come to terms except James Stockdale, who managed to hang out by delaying tactics until August 1797.[6] Middleton colliery was apparently wound up in consequence, and one or two firms converted their engines to ordinary atmospheric principles, but most agreed to pay up the premiums from the date their engines began working. From all these infringers in Lancashire Boulton and Watt recovered about £3,500.[7] But the most important result of all this conflict was not intended to be the money from the premiums—Boulton and Watt's legal costs amounted to between £5,000 and £6,000 [8]—but the defence of the patent so that other pirates would be discouraged.

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[1] *Manchester Mercury*, 15 September 1795.

[2] Stancliffe, *op. cit.* p. 69.

[3] *Op. cit.* pp. 422 and 444, note.

[4] James Watt (Birmingham) to A. Weston (London), 3 June 1796, Letter Book A, B.R.L.

[5] M. R. Boulton (Manchester) to James Watt junior (London), 25 May 1796, B.R.L.

[6] William Wilkinson's administration, 2 August 1797, L.C.R.O.

[7] 'Memorandum for J. Pearson respecting payment of the premium & indemnities for the infringements at Manchester &c, 10 July 1796', Letter Book A, B.R.L. To the sums mentioned in this document we have added £550 for the Cark engine, awarded by William Wilkinson in his arbitration, see footnote 6.

[8] Muirhead, *op. cit.* p. 402.

IV

In the process of defending their legal rights Boulton and Watt juniors learnt a great deal about the conditions of the engineering trade in each area they entered, and also observed the weaknesses in their own sales organization. In Lancashire it seemed to them that they would have an unchallenged command of the engine market once they had defeated Bateman and Sherratt's piracies:

> You will have been informed by Mr Watt of the submission of Bateman & Co whose defeat leaves us now without competitors in this quarter & every exertion should be made to supply the numerous Engines that are likely to be wanted in this part of the Kingdom. Bateman & Co were driving a roaring trade & had at the time they were served with Injunctions a great number of orders in hand. Indeed the field opened for us is very extensive . . . [1]

In an attempt to capture this market Boulton and Watt now made special efforts. In previous years they had been seriously handicapped by a shortage of engine-erectors.[2] In October 1790 they had sent Peter Ewart, 'a very ingenious and able Millwright', to erect engines and look after their interests in Lancashire,[3] but he also ran his own business and was constantly complaining about the lack of assistance.[4] After less than two years he gave up erecting for Boulton and Watt to go into partnership with Samuel Oldknow. He then advised them that they ought to have a full-time engineer in Manchester, for the erection and repair of their engines, and recommended James Lawson for the job.[5] Before Lawson was given the responsibility, Isaac Perrins acted for Boulton and Watt in Manchester. This man, a famous prize-fighter of his day, after erecting Drinkwater's engine and helping with others, moved permanently to Manchester about the end of 1793, took a public house, and continued to work for Boulton and Watt. He was an uncouth fellow, however, and insulted many of the customers, and he was eventually dismissed after threatening Lawson. Boulton and Watt either would not or could not remedy the engine erection delays in Lancashire, and did not seriously face the problem until the end of 1796.

Boulton and Watt juniors recognised that they needed in Lancashire 'a good workman of rather more intelligence than the common run of our Engineers, to be constantly resident' there, for the erection and repair of engines, because many customers would take repairs to Bateman rather than deal with Perrins.[6] This man was found in the excellent James Lawson. They needed such a man also because customers wanted to discuss their problems with an intelligent person before they placed their orders.[7] Then they needed to settle their prices so that they could give an immediate quotation.[8] Perhaps most important of all they needed to reduce the delivery time, and in this connection M. R. Boulton said of Bateman and Sherratt:

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[1] M. R. Boulton (Manchester) to John Southern (Birmingham), 29 May 1796, Box 2, B.R.L.

[2] See above, pp. 428-29, for their difficulties in regard to the erection of the Cark engine in 1786.

[3] J. Watt (Soho) to J. Watt junior (Manchester), 16 October 1790, and P. Ewart (Apedale) to J. Watt (Soho), 10 October 1790, B.R.L.

[4] See, for example, P. Ewart (Manchester) to Mr Forman (Soho), 11 February 1792, A.O.L.B. and P. Ewart (Manchester) to J. Southern (Soho), 25 March 1792, B.R.L.

[5] P. Ewart (Manchester) to Boulton & Watt (Soho), 4 August 1792, and P. Ewart (Manchester) to J. Watt (Soho), 18 August 1792, B.R.L.

[6] M. R. Boulton (Manchester) to J. Southern (Soho), 29 May 1796, Box 2, B.R.L.

[7] M. R. Boulton (Manchester) to M. Boulton (Soho), 23 May 1796, M. R. Boulton Box 2, A.O.L.B.

[8] M. R. Boulton (Manchester) to J. Watt (Birmingham), 31 May 1796, Parcel B, B.R.L.

> Their prices do not appear to be much if any lower than ours & the only inducement they offer is dispatch, this advantage is perhaps more pretended than real; it must however be our care not to leave [room for] this pretence . . . [1]

Boulton and Watt, through James Lawson's exertions, did tighten up their organization in Lancashire. With the establishment of the Soho Foundry in 1795–6, they also had more control over the delivery of engine parts than in the days when John Wilkinson supplied most of them.[2] Their previous dependence on Wilkinson and other ironfounders, and the trouble and delay which this caused to their customers, had given a strong competitive advantage to Bateman and Co. who had acquired their own foundry in the early 'eighties and so were able to make their own engine castings: thus Bateman and Co. could quote customers a price for an engine in the ordinary way, which was doubtless preferred to Watt's system of royalties, and were able to carry out the whole job, supplying all parts and erecting the engine.

Even after 1796 Bateman and Sherratt still had a great deal of engine business. A lull in their trade around Manchester was reported by James Lawson in November 1797,[3] but by February 1799 he was calling a different tune: '. . . B & S are busy with Engines in other places [and] they have more going on here that I know of'.[4] At this date they were copying Boulton and Watt engines exactly and leaving everything ready to put on the condenser as soon as Watt's patent expired. They were even making drawings which were copies of Boulton and Watt's engine drawings. At the height of the conflict with Boulton and Watt, they had asked if they could be granted licences to go on erecting engines on Watt's principles, but that permission was refused, since 'it would be to all intents and purposes making them partners in the Patent and whetting a knife to cut our own throats'.[5] They tried again in December 1799 when, as a special concession to Mr Isaac Horrocks, a cousin of Messrs. J. and S. Horrocks, they were allowed to erect an engine with a condenser and air-pump for Messrs. Newsham and Horrocks, of Preston, but once again no general licence was granted them.[6]

Nevertheless, Bateman and Sherratt still continued to build atmospheric engines and we have evidence of several in the later nineties. Mr Dunkerley, fustian manufacturer, of Oldham, ordered one of their engines in July 1796 and so did Mr. Hill of Pendleton.[7] At the auction in June 1797 of Messrs. Miles and

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[1] Enclosed in James Lawson (Leeds) to Boulton and Watt (Soho), 4 March 1797, B.R.L.

[2] Their difficulties had become acute in 1794–5, as a result of the quarrel between John and William Wilkinson, which completely disorganized the Bersham works, upon which Boulton and Watt depended for their cylinders. Transference of orders to the Dale Company did not solve the problem of delays and cancellations. See Ashton, *op. cit.* pp. 75–79.

[3] James Lawson (Manchester) to M. R. Boulton (Soho), 15 November 1797, B.R.L.

[4] James Lawson (Manchester) to Boulton and Watt (Soho), 23 February 1799, Parcel C, B.R.L.

[5] James Watt junior (London) to M. R. Boulton (Manchester), 23 May 1796, Box 38, B.R.L.

[6] James Lawson (Manchester) to Boulton and Watt (Soho), 20 November 1799, Parcel C, B.R.L., and Boulton and Watt (Soho) to Bateman and Sherratt (Manchester), 11 December 1799, Boulton and Watt Letter Book (Office), May 1799 to March 1800, B.R.L.

[7] James Lawson (Manchester) to Boulton & Watt (Soho), 22 July 1796, Parcel C, B.R.L. Two years later, however, we find Dunkerley replacing the Bateman and Sherratt engine by one from Boulton and Watt. James Lawson (Manchester) to M. R. Boulton (Soho), 7 July 1798, Parcel C, B.R.L.

Thomas Edwards, bankrupt cotton spinners of Kent St. Southwark, London, one of Bateman and Sherratt's engines was put up for sale.[1] Mr Wood, cotton manufacturer, of Carlisle, obtained a Bateman and Sherratt engine in 1798.[2] Messrs. Lees Cheetham & Co. cotton manufacturers, of Stalybridge, also ordered an engine from Boulton and Watt's rivals towards the end of 1800.[3] There is no doubt that Bateman and Sherratt were still finding customers for their atmospheric engines, especially in the rapidly developing spinning business. It is also interesting to discover that they made some of the earliest marine engines. One of these, an atmospheric engine, is said to have been fitted into a barge on the Bridgewater Canal in 1794.[4] Whether or not this was so, it is certain that in 1799 they made a Newcomen engine for a boat, nicknamed *Bonaparte*, designed by the celebrated Robert Fulton, which was built in the Duke of Bridgewater's yard at Worsley, for hauling coal-barges on the canal to Manchester. The boat proved a failure, but the engine and boiler had a long and useful life, for various industrial purposes, until 1851.[5]

Meanwhile Boulton and Watt, though increasing their business in Lancashire, were still beset by some of the old problems of delay in fulfilment of orders and lack of engine erectors; they still had to rely very often on Perrins. Towards the end of 1800 James Lawson reported that they were experiencing difficulty in obtaining orders in Manchester, 'for tho' B. & W. stand high [in reputation] nothing will compensate for want of expedition in such a fluctuating trade as this'.[6] The slowness with which Watt's engine penetrated the Lancashire cotton industry, and the prolonged competition of Bateman and Sherratt's less efficient Newcomen engines were pointed out many years ago:

> Notwithstanding the mechanical merits of the Soho Engine, and the great economy of its power, a large class interested in its adoption has been standing aloof and doggedly suffering enormous loss through waste of fuel, rather than submit to pay the 'oppressive tax' levied by Boulton and Watt of one-third of the saving in coals made by using their engine; which, in conjunction with the existence, in a flourishing state, of Bateman and Sherrard's manufactory of imperfect and most wasteful steam engines, may fairly be adduced as evidence of the avaricious ingratitude of communities to inventors, and of the obstinacy of the hostile prejudices generally arrayed against them.[7]

It is clear, however, from the contemporary evidence that the attitude of the Lancashire manufacturers was not determined merely by stupid conservatism and objection to Boulton and Watt's premiums. Bateman and Sherratt provided considerably speedier delivery and erection of engines whose initial capital cost was a good deal less than those of Boulton and Watt, and which were also simpler to keep in order.[1]

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[1] *Manchester Mercury*, 6 June 1797.

[2] James Watt junior (Workington) to M. R. Boulton (Soho), 6 August 1798, B.R.L.

[3] James Lawson (Manchester) to James Watt junior (Soho), 8 November 1800, B.R.L.

[4] Dickinson and Jenkins, *op. cit.* p. 320, where it is stated that a tracing of this engine is in the Science Museum at South Kensington. The Museum, however, has informed us that no such tracing can be discovered. There is a possibility of confusion here with the steamboat built by John Smith of St. Helens, which is said to have steamed along the Sankey and Bridgewater canals to Manchester in June 1793. 'Among the visitors was Mr Sherratt, of the firm of Bateman and Sherratt'. (*Liverpool Mercury*, 20 July 1832). Dr J. R. Harris, however, is of opinion that the correct date of this event is 1797. 'The Early Steam-Engine on Merseyside', *Trans. of the Hist. Soc. of Lancs, and Chesh.* CVI (1954), 115–6.

[5] W. H. J. Traice, 'Another Old Lancashire Engine at Worsley', *Manchester City News Notes and Queries*, Vol. IV (1881), pp. 1–2; B. Chapman, 'The World's First Steamboat', *Worsley Parish Magazine*, February 1947, pp. 18–19; and J. A. Rogerson, 'Story of "Old Nancy"', *A.E.I. News*, Vol. XIX, no. 6, June 1949, pp. 8–9.

[6] James Lawson (Manchester) to James Watt junior (Soho), 14 November 1800, B.R.L.

[7] *Patents for Inventions. Abridgments of Specifications relating to the Steam Engine* (1871), Part I, A.D. 1618–1859, Vol. 1, 107.

With the expiry of Watt's patent in 1800, Bateman and Sherratt were vigorously developing their business. They were reported to be planning the erection of 'a small Black Furnace in Manchester for heavy Castings with Lancashire Ore',[2] and they were capturing orders from Boulton and Watt. The development of throstle spinning about this time necessitated more power, and several manufacturers were therefore enquiring about having their engines enlarged or getting new ones. Owing to delays by the Soho firm, some of them turned to Bateman and Sherratt: 'one (Holland & Bridge) have ordered a new Cylinder of Bateman and Sherratt, and I suppose the Chorlton [Twist] Co. will do the same'.[3] Farey tells us that when Watt's patent expired and steam-engine makers began to spring up rapidly in all the manufacturing districts, Bateman and Sherratt, with their long experience, 'had the greatest success in this new business' of building engines on Watt's principles, 'and as engines were very much wanted at that time, for the increasing manufactories in Lancashire, their trade became very extensive in a few years'.[4] There is no doubt that these men prospered. At his death in 1824 James Bateman's personal estate was close on £80,000,[5] and when the Salford Foundry was sold in April 1838 it covered nearly 6,800 square yards, including pattern rooms, casting shops, smiths' shops, fitting-up shops, engine house, gas house and gasometer, crimper's shop, brass foundry and several other workshops.[6]

In the course of this paper we have listed references to forty-four engines built by Bateman and Sherratt by 1800, thirty-six of them in Lancashire, mostly in the Manchester area, and this has been done without the advantage of having the firm's own records. This figure is not far short of the total number of engines erected by Boulton and Watt in Lancashire by the same date (fifty-five).[7] And it is probable that Bateman and Sherratt produced many more engines of which no record has survived. In fact they may well have built more engines in Lancashire than Boulton and Watt had by the end of the century. Of their total horse-power, it is impossible to make an estimate, but figures of individual engines which have survived show that they were of comparable power to those of Boulton and Watt, though much less economical in coal consumption.

V

The engines made by Wrigley, Young, and Bateman and Sherratt certainly do not exhaust the numbers of engines made and set to work in Lancashire by 1800. Ebenezer Smith and Co., of the Griffin Foundry, Chesterfield, who also owned the New Foundry opposite Shudehill Pits, Manchester, advertised in February 1787 that they made, among many other engineering products, 'Cylinders, Iron and Brass Working Pieces, Boilers, Chains, Regulators, Pipes, and every other Article for FIRE ENGINES'.[1] This firm seems to have supplied a substantial proportion of the castings and forgings for machinery and millwork of all kinds in Manchester, including parts for Boulton and Watt engines.[2] They also made cylinders and other parts for Francis Thompson and soon began to produce their own engines. In 1790 they were receiving 'many applications for Fire Engine Work', *i.e.* for engines of 'the common sort'.[3] By the later nineties they appear as opponents of Soho, along with Bateman and Sherratt,[4] and there is evidence of at least one engine of their manufacture in Lancashire, somewhere on the Huddersfield Canal and described by James Lawson as 'one of the worst made I ever saw'.[5]

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[1] According to Farey, *op. cit.* p. 671.
[2] George Lee (Manchester) to James Watt junior (Soho), 28 July 1800, M. IV. B.R.L.
[3] James Lawson (Manchester) to James Watt junior (Soho), 14 November 1800, B.R.L.
[4] *Op. cit.* p. 677.
[5] Will dated 21/6/1821 and Codicil dated 8/3/1824. Probate at Chester 14/5/1824.
[6] Advertisement, *Manchester Guardian*, 7 April 1838.
[7] According to Lord, *op. cit.* p. 174.

Another Manchester iron-founding firm was that of Thomas Rider (or Ryder) of Scotland-bridge, Salford. This was an old-established concern, the only ironfoundry appearing in the first Manchester directory (1772). Thomas Rider was probably a relative of Nicholas Rider, of Marston Forge, near Northwich, Cheshire, who supplied boiler plates for a Watt engine in 1779.[6] Thomas Rider, his son apparently, in partnership with George Nelson, added Marston Forge to their Salford iron-founding business in the later nineties, when they were advertising their manufacture of engine boiler plates and also complete boilers, together with other cast and wrought-iron work.[7] We have discovered no evidence of their having produced steam engines, but they were certainly capable of doing so.

Alexander Brodie, a prosperous ironmaster and armaments manufacturer of Calcutts, Broseley, Shropshire, and Carey Street, Lincoln's Inn Fields, London, was also in partnership with two men named McNiven and Ormrod in a Manchester iron foundry.[8] In April 1798 Boulton and Watt discovered that Brodie was infringing their patent on engines which he had erected at Calcutts.[9] Brodie, in a most illiterate letter, said that he had no intention of infringing and offered to settle.[10] After some prevarication, he signed in June 1798.[11] It appeared that he had erected a boring mill engine (April 1796), a pump engine (October 1797), a blowing engine (April 1798) and a coal winding engine (January 1795), and for these he paid £602 in premiums.[12]

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[1] *Manchester Mercury*, 27 February 1787. Their foundry was at 7, Swan St., near Shudehill pits, and was usually referred to as the Griffin or Newcross foundry (being in the Newcross district). See Manchester directories for 1788, 1794, and later years, and P. Robinson, *The Smiths of Chesterfield* (Chesterfield, 1957), *passim.*

[2] See, for example, Smith and Co. (Chesterfield) to Boulton and Watt (Soho), 26 June and 21 July 1790, Box 4 'S', B.R.L.

[3] *Ibid.*

[4] James Lawson (Manchester) to Boulton and Watt (Soho), 3 August 1796, Parcel C, B.R.L.

[5] James Lawson (Manchester) to M. R. Boulton (Soho), 5 July 1798, Parcel C, B.R.L.

[6] Boulton and Watt (Soho) to Mr Rider (Marston Forge), 27 January, 12 February, 7 March, 19 April, and 16 September 1779, Boulton and Watt Letter Book (Office), January 1778–June 1780; Nicholas Rider (Marston Forge) to James Watt (Birmingham), 2 February, 30 March, and 29 May 1779, B.R.L.

[7] *Manchester Mercury*, 19 April and 4 October 1796 (advts. re Marston Forge).

[8] They first appear in Scholes's *Manchester and Salford Directory* (1794) at 'St. George's iron foundery, Knot-mill'. See W. H. Chaloner, 'John Galloway (1804–1894), Engineer of Manchester and his "Reminiscences" ', *Trans. of the Lancs. and Chesh. Antiq. Soc.* LXIV (1954), 104. Galloway's foundry was built on the foundations of Brodie's.

[9] Boulton and Watt to Brodie, 23 April 1798, Boulton and Watt Letter Book (Office), July 1797 to July 1798, B.R.L.

[10] Alexander Brodie (London) to Boulton and Watt, 4 May 1798, Parcel F'B', B.R.L. See also, Alexander Brodie to Boulton and Watt, 10 May 1798.

[11] M. R. Boulton (Soho) to James Watt junior (Newcastle upon Tyne), 17 June 1798, Parcel B, B.R.L.

[12] 'Calculations of Premiums upon the Engines erected by Mr B. Brodie', 3 November 1798, Boulton and Watt Letter Book (Office), July 1798 to May 1799, B.R.L.

Probably there were other engine-makers whom we have not discovered. There were certainly several more iron-foundries and a host of machine-making firms in Manchester by the end of the century. And there were engine-makers in other Lancashire towns. Thus in 1790 we find that Robert Lindsay and Co. of the Haigh Ironworks, near Wigan, were able 'to undertake the compleat construction of Fire Engines of every kind'.[1]

From the evidence presented it is clear that Boulton and Watt did not have a monopoly of engine-building in Lancashire during the term of their patent, 1775–1800. In fact it is probable that they built no more than a third of the engines in the county during that time. It is interesting to set against this conclusion John Rowe's statement:

> By 1794, instead of monopolising the use of steam power in Cornwall as they had done ten years earlier, Boulton and Watt had control and claims upon barely half the machines working in the county and their connections were with the less flourishing and losing mines.[2]

Thus in the two counties which made most use of steam power before 1800 Boulton and Watt had nothing like a monopoly: their engine had not succeeded in ousting the Newcomen engine, and piracies of their own were innumerable. In Lancashire, it seems that only the larger firms were able to afford Boulton and Watt engines. This must affect any estimate of the amount of fixed capital invested in steam power at this period, though that will be offset by the greater number of engines known to be at work.

It is impossible not to be impressed by the great variety of functions which were being performed by Savery and Newcomen engines in Lancashire. At first they were used for pumping water from coal pits or for waterworks, and then for the motive power of overshot water wheels. Engines of this last kind, and atmospheric engines adapted to a crank and fly-wheel, were used, along with pirated Boulton and Watt engines, for many industrial purposes: for winding coal, blowing furnaces, driving boring engines and lathes, milling corn, driving carding and spinning machines, grinding materials in dye-works, turning rollers in calico-printing and calendering works and squeezers and washers on bleach-fields. Steam-powered mechanisation was proceeding more rapidly in Lancashire in the late eighteenth century than has hitherto been supposed.

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[1] *Manchester Mercury,* 14 September 1790. For steam-engines erected in the Prescot and St. Helens area, see J. R. Harris, 'The Early Steam-Engine on Merseyside', *Trans. of the Hist. Soc. of Lancs. and Chesh.* CVI (1954), 109–116.

[2] J. Rowe, *Cornwall in the Age of the Industrial Revolution* (Liverpool, 1953), p. 101.

THE FINANCING OF JAPANESE ECONOMIC DEVELOPMENT

By G. RANIS

An economy which is able to achieve only subsistence levels of income by means of a full and optimum utilization of its resources is in serious difficulties. Unless it can count on extensive credit from abroad, it may be properly identified as 'doomed' rather than 'underdeveloped'. Domestic capital formation must carry the heaviest burden in any developmental effort, and there is very little which can be squeezed out at near-subsistence levels of income and consumption. Happily, most of the world's low income areas are not 'doomed' in this sense. Reserves of productivity usually do exist somewhere in the underdeveloped economy; the prime problem of development is to gather them in and utilize them efficiently. It is the purpose of this paper to demonstrate the existence and successful utilization of such reserves in the Japanese economy during the nineteenth century 'break-out' phase of her development. We intend to analyze the use of fiscal and monetary policies in the effort to preserve a maximum pool of savings at each subsequent higher level of income, either by a direct siphoning off into government coffers or, through interference with the distribution of income, by channelling it into other 'dependable' hands.[1]

I

'Taking up the slack' in any economy means making potential increments of productivity socially available, largely by means of reshuffling resources with a minimum need for additional investment. In the case of Japan, 'slack' was in evidence mainly in the form of excess labour on the land and reserves of productivity in the land.

The ability to withdraw labour hours from one sector of the economy and apply them elsewhere without suffering a loss of output in the former represents perhaps the purest form of such 'slack'. This represents the employment of the 'disguised rural underemployed', the squatting uncles and cousins who have become proverbial in the literature. The Japanese rural working population fell from 14.74 million in 1878–82 to 14·19 million in 1928–32, an absolute decline of 3.7 per cent during a period when total population was increasing at a rate of more than 1 per cent annually. This transfer, moreover, is understated since the shift of marginal working hours from agricultural to non-agricultural pursuits in the absence of any physical relocation is unaccounted for.

A second and closely related form of reserve productive capacity becomes evident when we consider reorganization and the limited addition of capital in the agricultural sector. This, in Japan, includes the adoption of a wide variety of new techniques, improved crop selection, breeding and rotation, winter draining permitting the double-cropping of rice and barley, the more intelligent and intensive use of fertilizer. The unit size under cultivation did not change; nevertheless, yields per acre as well as per man increased substantially. A small investment in the improvement of simple tools and techniques led to a large increase in productive capacity. Every investment which breaks through a bottleneck and results in higher levels of income should not, of course, be considered in the same vein; the only pragmatically useful distinguishing feature of this process of 'slack' recovery is the extremely high marginal productivity of the first and insignificant injection of capital.[1] Over the same 1878–82 to 1928–32 time-span, agricultural output increased by more than 153 per cent (see Table 1), raising the productivity of those remaining on the land by 163 per cent.

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[1] For a general treatment of Japanese economic growth see George C. Allen, *A Short Economic History of Modern Japan, 1867–1937* (1946). Also William W. Lockwood, *The Economic Development of Japan, Growth and Structural Change, 1868–1938* (Princeton University Press, 1954).

Table 1. *Changes in Agricultural Productivity*

Year	Money Net Agricultural Output [a] (cur. million yen)	Money Net Forestry Output [b] (cur. million yen)	Total (cur. million yen)	Agricultural Price Index [b] (1928–32 = 100)	Total (constant mil. yen)	Total 5 Yr. Average (constant mil. yen)	Working Population in Agriculture and Forestry [c] (million)	Working Population in Agriculture and Forestry 5 Yr. Average (million)	Productivity of the Working Population in Agriculture & Forestry 5 Yr. Average (constant yen)
1871									
72							14·79		
74							—		
1875							—		
76							—		
77							—		
78	218	21	239	33·4	715		—		
79	349	34	383	43·8	881		—		
1880	473	44	517	48·9	1058	904	—	14·74^{E}	61.3
81	462	43	505	54·5	927	(1878–	—	(1878–	
82	376	35	411	43·8	938	1882)	—	1882)	
83	289	27	316	32·2	981		—		
84	216	20	236	27·2	869		14·72		
1885	307	29	336	31·2	1077	1032	—	14·80^{E}	69·7
86	321	31	352	32·4	1083	(1883–	14·89	(1883–	
87	304	30	334	30·2	1149	1887)	—	1887)	
88	254	25	279	27·8	1004		—		
89	287	28	315	30·5	1033		—		
1890	510	50	560	40·8	1371	1196	—	14·75^{E}	81·1
91	411	40	451	34·9	1292	(1888–	—	(1888–	
92	424	41	465	36·4	1279	1892)	—	1892)	
93	415	40	455	40·2	1133		—		
94	563	45	608	41·2	1479		—		
1895	550	54	604	43·2	1401		—		
96	509	50	559	44·8	1245	1308	—	14·58^{E}	89·7
97	619	61	680	53·0	1282	(1893–	—	(1893–	
98	1017	60	1077	63·3	1701	1897)	—	1897)	
99	676	67	743	52·3	1421		—		
1900	796	84	880	56·6	1555	1558	—	14·41^{E}	108·1
01	861	70	931	54·8	1699	(1898–	—	(1898–	
02	730	79	809	57·1	1415	1902)	—	1902)	
03	976	71	1047	65·1	1608		14·31		
04	1031	72	1103	61·8	1785		14·44		
1905	791	63	854	63·5	1345	1628	14·39	14·36	113.4
06	1030	73	1103	67·8	1627	(1903–	14·30	(1903–	
07	1249	92	1341	75·6	1774	1907)	14·35	1907)	

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[1] Conceptually, this may differ from 'slack' in the puristic sense, but, in a loose sense, some small investment will always be associated with taking it up.

Table 1 (*Continued*)

Year	Money Net Agricultural Output [a] (cur. million yen)	Money Net Forestry Output [b] (cur. million yen)	Total (cur. million yen)	Agricultural Price Index [b] (1928–32 = 100)	Total (constant mil. yen)	Total 5 Yr. Average (constant mil. yen)	Working Population in Agriculture and Forestry [c] (million)	Working Population in Agriculture and Forestry 5 Yr. Average (million)	Productivity of the Working Population in Agriculture & Forestry 5 Yr. Average (constant yen)
1908	1243	100	1343	68·9	1949		14·33		
09	1079	99	1178	62·6	1881		14·32		
1910	919	136	1055	62·7	1685	1875	14·31	14·32	130·9
11	1298	93	1391	73·5	1893	(1908–	14·30	(1908–	
12	1571	99	1670	85·0	1965	1912)	14·33	1912)	
13	1627	102	1729	87·7	1970		14·32		
14	1307	82	1389	72·7	1911		14·33		
1915	1070	80	1150	61·5	1870	1966	14·30	14·31	137·3
16	1304	98	1402	69·7	2011	(1913–	14·30	(1913–	
17	1802	179	1981	95·9	2066	1917)	14·30	1917)	
18	2829	267	3096	142·0	2180		14·30		
19	4460	446	4906	194·0	2529		14·29		
1920	3439	325	3764	177·5	2121	2189	14·29	14·24	153·7
21	2819	385	3204	136·3	2351	(1918–	14·18	(1918–	
22	2478	290	2768	157·1	1762	1922)	14·12	1922)	
23	2686	331	3017	146·8	2055		14·10		
24	3104	308	3412	163·5	2087		14·09		
1925	3158	268	3426	175·8	1949	2057	14·11	14·10	145·9
26	2904	254	3158	152·7	2068	(1923–	14·11	(1923–	
27	2608	250	2858	134·4	2126	1927)	14·10	1927)	
28	2639	255	2894	136·6	2119		14·12		
29	2767	237	3004	106·0	2834		14·09		
1930	1837	166	2003	98·3	2038	2287	14·13	14·19	161·2
31	1508	148	1556	75·4	2064	(1928–	14·27	(1928–	
32	1836	157	1993	83·7	2381	1932)	14·35	1932)	
33	2292	192	2484	94·3	2640		14·35		
34	2026	221	2247	95·7	2345		14·39		
1935	2429	232	2661	112·0	2380	2534	14·43	14·41	175·9
36	2772	263	3035	120·2	2523	(1933–	14·45	(1933–	
37	3175	339	3514	126·9	2783	1937)	14·45	1937)	

a) Tsutomu Noda in 'Nōgyō to Keizai' (Agricultural Economics), August, 1953, p. 48.

b) From working papers of the Economic Research Institute at Hitotsubashi University.

c) Kenzo Hemni, 'Wagakuni Nōgyō Wa Jinkōzu o Ketteisuru Shojoken', (Number of People in Agricultural and Forestry Occupation), Agricultural Research Institute, Ministry of Agriculture and Forestry, June 1954.

E) Estimated by simple projection between the years for which figures were available, i.e. 1872, 1884, 1886, and 1903. Since changes in magnitude were not significant throughout this period, a possible error could affect our calculations only slightly.

It should be clear from our figures that the bulk of this increase in agricultural productivity occurred during the last twenty years of the nineteenth century; the rural working population declined by 2·1 per cent, output increased by 72·3 per cent and agricultural labour productivity by 73·3 per cent.[1] This is also the period, as seen in Table 2, for which the introduction

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[1] In the twenty years after 1900 productivity increased by only 42.2 per cent. Bruce Johnston, 'Agricultural Productivity and Economic Development', *Journal of Political Economy* (December 1951), pp. 499–500, obtains increases in productivity somewhat higher than mine for most periods. His overestimation seems to be due partly to his use of working population estimates which have since been revised, but largely due to his use of gross production figures for Japan's six major crops rather than net production figures for Japan's total agricultural output.

Table 2 *Government Subsidies*

1,000 Current Yen

Year	Agriculture and Forestry			Industry			Commerce (Incl. Exp., Imp., Transp.)			General			Total	
	Cur. [a]	Real [b]	Per Cent of Total	Cur. [a]	Real [b]	Per Cent of Total	Cur. [a]	Real [b]	Per Cent of Total	Cur. [a]	Real [b]	Per Cent of Total	Cur. [a]	Real [b]
1880	—	—	—	410	830	20·4	255	515	12·6	1348	2723	66·9	2013	4067
1882	2	4	—	796	1595	34·0	125	250	5·3	1422	2850	60·7	2345	4699
1890	—	—	—	2328	5734	58·7	131	323	3·3	1500	3695	38·0	3959	9751
1895	—	—	—	2910	7098	46·4	1375	3354	22·0	1976	4820	31·6	6261	15271
1900	358	644	1·5	12018	21615	52·0	6636	11935	28·7	4131	7428	17·8	23143	41624
1905	228	355	1·1	11588	18050	55·2	5929	9235	28·2	3242	5050	15·5	20987	32690
1910	328	494	·8	15322	23075	38·0	12472	18783	30·9	12213	18393	30·3	40335	60746
1915	2083	2950	4·7	15920	22550	35·7	12296	17416	27·6	14215	20135	31·9	44514	63051
1920	551	291	·6	19376	10230	19·6	32409	17111	32·8	46560	24583	47·0	18896	52215
1925	6865	4661	4·3	71198	48335	44·4	23077	15667	14·5	59048	40087	36·8	160188	108749
1929	21421	17660	10·8	79868	65843	40·2	21645	17844	10·9	75571	62301	38·1	198515	163647
1932	28267	33061	11·2	43583	50974	17·3	27446	32101	10·9	152271	178095	60·5	251567	294231
1935	37596	36679	17·8	23151	22586	10·9	20778	20271	9·9	129469	126311	61·4	210994	205847
1938	78167	57140	20·0	42066	30750	10·8	159665	116714	40·9	110780	80980	28·3	390678	285584

a) *Nihon Keizai no Kōzō Bunseki* (Analysis of Japanese Economic Structure), Ichiro Nakayama, editor, Toyo Keizai (1954), Chapter IX, part 2.

b) Using Ohkawa's general price deflator, 1928–32 = 100, developed at the Hitotsubashi Economic Research Institute.

of public capital into agriculture was at a much lower level than in later years; smaller returns in labour productivity concurrent with a larger investment effort leads us to conclude that the considerable reserves of productivity in the Japanese economy were running out after the turn of the century.

The successful gathering in of existing reserves of productivity does not, of course, guarantee that anything but fuller stomachs, or more of them, will result. In a low-income economy there invariably exist powerful pressures for consuming the gains which can be made to accrue. To withstand the extremes of such pressures – even more than the need to enhance people's willingness and ability to work – is a central problem of economic growth. If 'slack' which constitutes, so to speak, a once-and-for-all bargain is dissipated, development becomes once again extremely painful or impossible. Pressures against the investible surplus of an economy at each and every stage of development derive from population growth and increases of per capita consumption. It is the purpose of the following section to review the means by which such pressures were contained and high savings propensities achieved.

II

Japan experienced a substantial increase in numbers, from 34 million in 1870 to 44 million in 1900 and 64 million in 1930.[1] There, as elsewhere, increased economic activity was associated with increased numbers. History shows this to be inevitable. A developing economy must either be able to accommodate such increase, or cease growing.

Accepting the inevitability of devoting a share of the potential savings fund to the feeding of additional mouths, the economy must marshal its forces to resist the influences tending to increase per capita consumption. It is, of course, neither possible nor desirable to keep the door against increased consumption levels hermetically shut;[2] nevertheless, it is the size of the attainable margin above the maintenance of an existing capital stock and a growing population which tells the story between successful and unsuccessful attempts at development.

An economy's siphonable savings are composed of the voluntary and involuntary contributions of its people; an economy breaking away from low levels of income and consumption must rely heavily on maintaining a high marginal propensity to save out of new and higher levels of income. In Japan, a severely regressive tax structure, coupled with favourable savings propensities among the upper income groups, served to siphon off, for purposes of development, much of the increment in income accruing during the 'break-out' period. Dissipation of resources in consumption or non-productive investment was minimized.

The Land Tax. The peasant traditionally has carried the heaviest burdens in Japanese society. Before 1868 he supported the feudal ruling classes in the court cities; after the Restoration he became the prime source of developmental capital. Good returns to be obtained from the soil – through his labour – were gathered up by means of high rents and the tax on land.[1]

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[1] During the preceding Tokugawa period a classic Malthusian situation obtained; population increases are reported after good harvests with subsequent floods, famines and disease (positive checks) and widespread abortion and infanticide (vices) bringing numbers back to their original level.

[2] There are temporal limits, even in an absolute dictatorship, beyond which people who are experiencing change on all sides will refuse to accept static consumption levels plus promises for the future. Moreover, it may be wise for reasons of incentives to let the population have an early, if small, sample of the fruits of development. Lastly, if the population is in a physically undernourished state, permitting small increases in per capita consumption may raise labour productivity more than devoting the equivalent resources to the purchase of physical capital goods.

Table 3 indicates that the land tax alone provided more than 70 per cent of central government revenues during the first decades after the Restoration; local governments, for which no revenue breakdown was available, acquired a similarly large proportion of their income from the land. Taxing away the agricultural *produit net* represented the dominant source of government revenue, at least until the turn of the century when the agricultural 'slack' was becoming exhausted and increasing returns in secondary production provided an alternative tax base.

The effects of the land tax on incentives and income distribution in agriculture are of prime importance. The initial burden of the 1873 levy was not appreciably different from that imposed during the preceding Tokugawa period. But the resulting pressures were different and gave rise to a seemingly contradictory economic behaviour pattern: increased productivity and a reduction of the real tax burden, accompanied by increases in tenancy.[2] The real burden on the individual cultivator of a lump sum tax liability was substantially reduced over time, not only by the increases in agricultural productivity cited above but also by secular increases in the price of rice.[3] In fact, as we shall see, this lower real tax burden benefited only the larger landowners while small cultivators found themselves under increasing pressures to sell out.[4] The result, as seen in Table 4, was a persistent increase in the proportion of cultivated land under tenancy.

The apparent contradiction here can be cleared up by emphasizing the severe cyclical price fluctuations to which the small peasant-owner fell victim. Unlike the large landlord, he was not in a position to choose his time of tax payment and was forced to dump large amounts of produce on a market over which the former had considerable control. Regardless of volume, the value of the produce marketed could easily fall below the average assumed as a tax base by the original valuation procedure. The only alternative might well be to go into debt [5] and, since the only credit available, short term and high

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[1] The Land Tax Reform of 1873 brought a change from payments in kind to payments in money and from tax burdens as a percentage of gross receipts fluctuating with the harvest to tax burdens as a percentage of an assessed fixed value independent of harvest conditions. The latter value was arrived at as follows: for each 20–30 villages of about equal observed fertility, a 'typical village' was selected as a yardstick. The gross yield of a 'typical' piece of land in this village was determined by using the average yearly raw yield during the past 5 years, multiplied by the average yearly price. Sixty-five per cent of this gross yield was subtracted for cost of seeds, fertilizer, previous land taxes, etc.: the residual net yield (implicit wages not deducted) was subsequently capitalized at 6 per cent. Similar pieces of land in this as well as other villages were then valued in relation to it and an annual tax of 3 per cent (later 2½ per cent) levied on this base.

[2] I am indebted to Professor Kazushi Ohkawa of Hitotsubashi University for a helpful discussion of this problem.

[3] An extreme case is illustrated here:

	Land Tax Liability	*Average Price of Rice*	*Real Burden of Tax*
1877	39·5 mill. yen	5·58 yen per koku	100 (1877 = 100)
1881	43·3 mill. yen	11·15 yen per koku	55

compiled from mimeographed materials at the Nogyo Sogo Kenkyuko (National Research Institute of Agriculture), Ministry of Agriculture and Forestry, Tokyo.

[4] See E. Herbert Norman, *Japan's Emergence as a Modern State* (Institute of Pacific Relations Inquiry Series, New York, 1940), pp. 144–9.

[5] Even if we abstract from the manipulation of local markets by the large landlord, it is unlikely that the small proprietor, living near subsistence levels, will be sufficiently sophisticated to build up an anticyclical cache at the conclusion of a good harvest.

Table 3 *Composition of Central Government Tax Take*[a]

(Current Million Yen)

Year	Land Tax	Per Cent of Total	Excise Taxes [b]	Per Cent of Total	Sub-total (Land Tax & Excises)	Per Cent of Total	Income Tax	Per Cent of Total	Business Taxes [c]	Per Cent of Total	Customs Duties	Per Cent of Total	Miscellaneous	Per Cent of Total	Total
1870	11·3	73·9	—	—	11·3	73·9	—	—	—	—	1·1	7·1	2·9	18·9	15·3
1880	42·3	72·9	5·8	10·0	48·1	82·9	—	—	—	—	2·6	4·5	7·3	12·6	58·0
1890	40·1	51·7	16·9	21·8	57·0	73·5	1·1	1·4	·3	·4	4·4	5·7	14·8	19·1	77·6
1900	46·7	24·6	54·4	28·6	101·1	53·2	6·4	3·4	7·3	3·8	17·0	8·9	58·2	30·6	190·1
1910	76·3	15·9	89·6	18·7	165·9	34·6	31·7	6·6	32·5	6·8	39·9	8·3	208·9	43·6	478·9
1920	73·9	6·2	375·4	31·6	449·3	37·8	190·3	16·0	116·7	9·8	69·4	5·8	361·4	30·5	1187·1
1930	68·0	4·8	529·0	37·4	597·0	42·2	200·6	14·2	112·1	7·9	105·4	7·4	401·2	28·4	1416·3

a) Japan, Department of Finance, *Financial and Economic Annual of Japan.*
b) Including tax on sake, tobacco, sugar, soya, textile fabrics, as well as profits from camphor, salt and tobacco monopolies (where applicable).
c) Including business tax, succession tax, tax on bonuses, capital interest tax, business profits tax, war profits tax, and special profits tax (where applicable).

Table 4 *Tenancy in Japanese Agriculture*

Year	Percentage of Total Cultivated Land Under Tenancy
1883 [a]	37·0
1887 [a]	39·3
1892 [a]	40·0
1914 [b]	45·5
1921 [b]	46·3
1925 [c]	45·8
1930 [c]	47·7

Sources:

a) E. Herbert Norman, *op.cit.* p. 148.

b) Tobata Seiichi, *Nihon Nogyo No Tenkai Katei* (The Process of Development of Japanese Agriculture), (Tokyo, 1953), p. 25.

c) *Norinsho Ruinen Tokeihyo* (Statistics of the Ministry of Agriculture and Forestry) (Tokyo, 1955), p. 10.

rate, was offered by the same landlord in his rôle of usurer, the end result was clear. The reduced real burden of the land tax benefited only a limited group.

Agricultural rents, of course, were paid in kind and tied to current levels of production. There was no *a priori* necessity for the tenant to derive any benefits from the secular change in prices and productivity. Table 5 permits us to conclude, however, that the burden of rents as a percentage of net output declined somewhat, especially in later years. Widening lags between increasing production and rents helped to strengthen incentives among tenant-tillers. However, the landlord clearly stood to gain the most from the exploitation of agricultural reserves of productivity. Receiving rising direct or rental incomes while paying taxes increasing in smaller proportion, this group was in a position to lay claim to most of the surplus which did not land in government coffers.

The Japanese landlord of the Meiji era presents a sharp contrast to Ricardo's wastrel type. From the outset he devoted himself to improvements, promoted societies for the discussion of agricultural techniques, introduced winter drainage and helped sponsor the growth of superior rice strains. The topographical dictates of Japanese rice culture (except possibly in the northern island of Hokkaido), as well as the high level of rents, contributed to the preservation of the small unit of cultivation and the avoidance of 'capitalistic' forms of agricultural management. There is no evidence of any sizeable diversion of the landlords' respectable surpluses to high living or speculation. A large share of these surpluses as well as of the Land Tax proceeds was invested outside of the primary sector. In terms of making funds available for an over-all development programme, the residual rent, the interest on the rural debt, as well as the Land Tax proper must be included.

Other Fiscal Measures. The fiscal system as a whole – rather than single effective levies such as the Land Tax – must, of course, bear the burden of preserving a maximum proportion of the increased real output accruing as the result of developmental activity. Japanese taxes were heavy in an absolute and severely regressive in a relative sense. The total direct tax revenue allocatable to agriculture and non-agriculture as a percentage of the net income in each sector is presented in Table 6.[1] The heavy burden on

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[1] Thanks are due here to Mr Tsunematsu of the Agricultural Research Institute of the Ministry of Agriculture and Forestry.

Table 5 *Relative Shares in Agriculture* [a]

5A

Percentage of Total Product

Year	Landowner	State	Tenants
1868 [b]	18	50	32
1873 [c]	34	34	32
1874–76 [c]	55	13	32
1877 [c]	50	18	32
1878 [b]	56·5	11·5	32

5B

Year	Rent as a Per Cent of Net Agr. Output [d]	Tax Burden as a Per Cent of Net Agr. Output [e]	Tenant's Share as a Per Cent of Net Agr. Output
1878–82	60·4	16·9	22·7
1888–92	56·0	15·5	28·5
1898–1902	50·7	12·1	37·2
1908–1912	55·1	12·5	32·4
1918–22	59·1	9·2	31·7
1928–32	57·9	9·7	32·4

a) Table 5A gives shares of gross rather than net output. The figures are, nevertheless, useful for the purpose of comparison with the results of Table 5B.

b) Motozaku Kimura, 'Fiscal Policy and Industrialization in Japan, 1868–1889', *Annals o the Hitotsubashi Academy* (October 1956), p. 22.

c) Takao Tsuchiya and Saburo Okazaki, *Nihon Shihonshugi Hattatsu Shi Gaisetsu* (Outline History of the Development of Japanese Capitalism), (Tokyo, 1937), p. 68.

d) Rent figures from *Nihon Keizai No Seicho to Nogyo* (The Growth of the Japanese Economy and Agriculture) Ohkawa, Kazushi, editor; unpublished in mimeographed form, Agricultural Research Institute of the Ministry of Agriculture and Forestry, June 1954.

e) See Table 6, below.

Table 6 *Allocation of Direct Tax Burden*

Year (Annual Average)	Direct Tax Allocatable to Agriculture [a] (cur. mil. yen)	Net Income of Agriculture [b] (cur. mil. yen)	Tax Burden on Agriculture (per cent)	Direct Tax Allocatable to Non-Agriculture [a] (cur. mil. yen)	Net Income of Non-Agriculture [b] (cur. mil. yen)	Tax Burden on Non-Agriculture (per cent)
1878–1882	63·6	376	16·9	6·3	283	2·2
1884–1887	63·6	287	22·1	9·5	313	3·0
1888–1892	58·5	377	15·5	9·8	420	2·3
1894-1897	65·6	531	12·4	13·2	660	2·0
1898–1902	99·1	816	12·1	35·4	1106	3·2
1903–1907	113·6	1015	11·2	79·3	1467	5·4
1908–1912	153·4	1222	12·6	132·2	2077	6·4
1913–1917	167·7	1422	11·8	145·4	3216	4·5
1918–1922	295·7	3205	9·2	431·1	7967	5·4
1923–1927	304·2	2892	10·5	506·2	9706	5·2
1928–1932	205·5	2117	9·7	421·3	9723	4·3
1933–1937	197·3	2539	7·8	559·2	13159	4·2

a) Tax figures are from an unpublished manuscript by Mr Seiji Tsunematsu of the Agricultural Researc Institute of the Japanese Department of Agriculture and Forestry. It is intended to be a part of an as ye unpublished volume, 'Nihon Keizai to Nōgyō' (Japanese Economics and Agriculture).

b) Income figures from the worksheets of the Economic Research Institute at Hitotsubashi University.

agriculture becomes even more evident when we recall (see Table 2 above) that government subsidies in this sector represented only a very small proportion of the total during the nineteenth century. Even in subsequent decades, when non-agricultural income was growing at a faster rate and had reached higher absolute levels, the tax burden on agriculture remained relatively more severe. The absolute burden on the economy as a whole was, however, considerably reduced at the conclusion of the nineteenth-century 'take-off' period.

Regressiveness in the tax structure cut across sectoral lines. The dependability of profit receivers in the burgeoning secondary sector left fiscal policy here essentially free to disregard the dangers of potential luxury spending, speculation, or non-productive investment, and to concentrate on containing the broad base of consumption. Following Engel's Law, excise taxes on food and clothing are likely to be most effective in this effort in the low-income area. Moreover, as such an economy grows, the pressure for consuming the increments in income which accrue in the course of development are bound to change direction. An awareness of the specificity of demand at one time and of such shifts over time is essential if the tax structure is to be flexible enough to trap a good share of the increases in per capita income not voluntarily freed for investment.[1]

Excise taxes held a place of prominence, second only to that of the Land Tax, in the Japanese fiscal system. The levy on sake alone amounted to about 20 per cent [2] of total tax revenue around the turn of the century. Selective excises on soya, sugar, textiles, and government monopoly profits in tobacco, camphor and salt – really only another form of indirect taxation – constituted the rest. Changes over time in the array of consumer goods subject to tax (e.g. from soya to tobacco) and in the schedule of rates (e.g. selective increases in 1875 and 1882) are evidence that the revenue system was kept flexible in order effectively to block consumption in the course of a shifting pattern of demand.[3]

Government policy called for heavy taxes on both peasant and consumer and a lighter burden for the landlord and industrial-merchant classes. The income tax did not appear until 1887 and then at the low flat rate of 3 per cent. Table 3 shows that proceeds from this source were negligible before 1900; the definition of the tax base, moreover, rendering all interest on government and other savings bonds, all life insurance premia and forty per cent of all dividend receipts deductible, transformed it into a severely regressive levy.

A so-called business tax, equivalent to a proportional corporate income tax, went into effect only in 1896. It was levied on commercial and industrial enterprises, proportional to a formula using the amount of capital involved, the rental value of the plant and the number of employees.[4] The highest rates (5–6 per cent on the rental value of the premises) were reserved for such luxuries as restaurants and hotels. Transportation and engineering enterprises, on the other hand, enjoyed rates of from 0·1 to 1 per cent. Progressive levies, i.e. the Capital Interest Tax and the Business Profits Tax were not enacted until 1926.[1] Even more significant are vaguely defined exemptions granted to 'the iron foundry business' and areas 'producing certain important goods'.[2] Needless to add, benefits which could not be bestowed in the law itself could be granted in its administration.

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[1] Indicative of the helping hand of price inelasticities in preventing shifting is the fact that sake (rice wine) production both in the year previous to which a levy on it was first installed (1897) and in the year previous to which the rates were further increased (1899) did not noticeably decline in spite of the price increases. See Matsayoshi Matsukata, *Report on the Post-Bellum Financial Administration in Japan* (Tokyo, The Government Press, 1900), p. 156.

[2] See Table 3, page 446.

[3] There is ample proof that the Japanese realized the full potentialities of a selective tax structure. The tax on the manufacture of cloth, for example, carried exemptions for materials whose immediate or ultimate destination was in the export market.

[4] One popular formula: 40 per cent of the rental value of the plant as a base, plus one yen additional per employee.

Incentives for reinvestment and the accumulation of productive wealth were further strengthened by the absence of inheritance and real estate taxes before 1905, and the prevalence of very low rates thereafter. In combination with the predominance of primogeniture in the Japanese family such policies guaranteed the transfer of industrial fortunes virtually intact from generation to generation. Negative taxes or subsidies could, of course, supplement tax exemptions where necessary.[3] On the expenditure side also, as we have seen, industry and commerce were favoured at the expense of agriculture and the workshops.[4]

The strongly oligopolistic trend in Japanese industry leading to the establishment of conglomerate enterprises reaching into every area of industrial activity made its own contribution to this redistribution of the income shares. The Zaibatsu and Zaibatsu-linked enterprises served, in a sense, as an arm of the national treasury; concessions exacted from the small producer in sub-contracted domestic industry can be viewed as a fiscal levy; monopoly prices on the consumer side can be viewed as an indirect tax. In a situation where it is assured that profits will not lie idle or, more importantly, be misused, the old question as to whether a competitive or monopolistic market configuration is better suited to growth seems to resolve itself.

All efforts were directed at siphoning off increments in income which had accrued to undependable would-be consumers, while preferential treatment was accorded those with whom only the ability, never the willingness, to reinvest was at issue. A blatantly regressive tax-expenditure structure is favourable to development only if the potentially investing classes are naturally disposed in that direction, or are subject to the discipline of an intervening state.

The largest contribution of the landlord-industrialist group came through the direct reinvestment of profits; moreover, this group subscribed to a large share of the banking capital and was instrumental in the flotation of the domestic debt. The fact that they abstained from diverting resources to non-developmental purposes is evidence of a degree of cooperation – or discipline – which makes it difficult to ascertain where the public sector ended and the private began.[5]

During the very first years of the Meiji Restoration, admittedly, the strictly voluntary basis of this upper class 'dependability' was open to some doubts. A few days after the new government took office, for example, a notice went out to well-to-do merchants and landowners all over Japan reminding them that 'we are constrained to secure revenue' and that 'as your firm has been in the financial service of the Imperial Court from the olden time, you are ordered to be in the service of the Revenue Office hereafter'.[1] On occasion, representatives of leading houses were assembled and directed to prepare a roster of wealthy local citizens; the latter would then be summoned to the Imperial Palace and told in no uncertain terms that their help was required;[2] it was not easy to refuse compliance.[3] Clearly, such procedures can hardly be dignified as loans; they are, rather, a form of expropriatory tax and were discontinued after the extreme pressures of 1868–69 had passed. The government subsequently extended the promise that all such *goyokin*, or 'domestic loans', would become redeemable through the use of land tax proceeds; and in fact, 90 per cent were ultimately repaid.

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[1] The temporary World War I War Profits Tax is the exception.

[2] Japan, Department of Finance, *Financial and Economic Annual of Japan*, (Tokyo, 1926), p. 30.

[3] Especially in areas where the need for additional protection was felt, since the Unequal Treaty System deprived Japan of the tariff as a tool for development. The shipping trade, for example, was almost wholly dominated by the American Pacific Mail Company from the early Meiji days. The Mitsubishi Steamship Company was encouraged by the government, guaranteed against losses until the American company could be brought to its knees, and received an 8 per cent yearly dividend thereafter.

[4] Subsidies were, moreover, employed as a fine instrument for channelling investment. To relieve the balance of payments pressure, for example, ocean-going navigation, preferably in Japanese-built bottoms, was encouraged. A subsidy of 1·2 yen per ton was offered for ships in excess of 1000 tons. If the engines were a Japanese product as well, an additional payment of 5 yen per unit of horsepower was allowed for.

[5] For a detailed discussion, see the author's 'The Community-Centered Entrepreneur in Japan', *Explorations in Entrepreneurial History* (December 1955).

The lion's share of voluntary savings was of the 'retained' rather than the 'transferred' variety. In agriculture some direct accumulation took place in the form of agricultural improvements – by the deployment of an additional fraction of a peasant's time to road construction or fence mending. In small-scale domestic industry a similar expansion or improvement of the workshop during spare hours helped mobilize reserve productive capacity directly.[4] But such contributions are not significant in relation to the cumulative reinvestment of profits in the large industrial enterprises.

Landowners and industrialists provided the bulk of 'transferred' voluntary savings. They subscribed to a major portion of the banking capital, and there is evidence that a limited amount of government debt found a market outside of the banking system. Some loans floated during the nineteenth century were partly subscribed to by 'individuals' and 'companies' in what appears to be a normal savings operation. But the public market remained very narrow; 12·47 million of the 12·50 million yen New Loan of 1878, for example, was placed with the Mitsui family.[5] The private equity market was also narrowly based. Most industry employed the closed corporate system, controlled by either the Zaibatsu, the government, or some form of coalition of the two. Attempts at broadening participation were by no means lacking. The government issued pamphlets explaining the joint stock company structure to the public, established advisory 'commercial bureaus', clearing houses on the London model and a Tokyo Stock Exchange in 1878. To the present day, however, there has been little evidence of a wide-spread willingness or ability to adopt the more advanced financial techniques of this type.

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[1] Eijiro Honjo, 'Goyokin and the Meiji Restoration', *Kyoto University Economic Review* (July 1933), p. 18.

[2] In February 1868, for example, 650 citizens of Osaka were thus summoned and instructed. This is hardly surprising as E. Herbert Norman (*op.cit.* p. 49) reports that 70 per cent of the private capital at the time of the Restoration was distributed among the merchants of Osaka.

[3] The Mitsui family, for instance, soon to become the new government's sole fiscal agent, was ordered to turn in 50,000 ryo (an old unit valued at two yen) in 1868. There was immediate agreement to pay 20,000 ryo and the promise of an additional 10,000 in the following year. The government, however, insisted on full and immediate payment and the Mitsui were forced to liquidate assets in order to comply.

[4] The extent of such savings is, of course, not statistically verifiable and undoubtedly an equivalent amount of 'transferred' savings would have greater developmental value since it can be precisely channelled. An equivalent amount would, however, not be available.

[5] The small saver was offered a special inducement, a promise that he would receive the full amount of his intended subscription and at the issue price. In view of the claims of oversubscription and the consequent placing of portions of most flotations at premium prices, this offer amounted to a clear incentive. See Matsayoshi Matsukata, *Report on the Post-Bellum Financial Administration in Japan* (The Government Press, Tokyo, 1900), p. 80.

Surprising, however, is the fact that the lower income groups, discriminated against by heavy taxes and an imperfect credit market, nevertheless managed to increase their rate of voluntary savings. The relative success of institutional patterns of savings, in spite of high taxes and moderate inflation, attest to proverbial Japanese thriftiness. Moral suasion from the top of the hierarchical structure was effectively employed in the effort to strengthen such tendencies. Imperial edicts had a considerable impact after the so-called Restoration of the Emperor to secular power. 'Let us avoid all luxuries', to quote a typical one, 'so that we can keep up with the world; truly the development of our national productive strength has its roots in reverent obedience. . . . May you, our people, take these, our wishes, to heart'.[1]

Savings banks, of which some 460 were in operation by the end of the nineteenth century, became the most popular vehicle in the effort to strengthen such habits among the lower income groups.[2] The Japanese evidenced a definite affinity for an institutionalized regulated savings mechanism, as characterized also by the postal savings system,[3] mutual aid associations and cooperative societies. In terms of real magnitudes, however, total voluntary savings, by direct investment on the farm and in the household, and by indirect investment through financial intermediaries, were small compared with the reinvestment of business surpluses, and the use of tax-financed public funds.

Inflation-Forced Savings. It would seem ideal to be able to plan development as follows: initially exploit available reserves with a minimum of investment; tax these funds away and employ them to clear bottlenecks in other sectors, with resulting secondary increases in income; a suitable tax structure can then be expected to yield the capital needed for further expansion. Unfortunately, this is an unrealistic pattern. Development does not proceed by neat stages; long gestation-period investments in social overhead and capital goods industries are usually required even in the early days of a logically consistent developmental effort. As a result, voluntary plus taxation-forced savings may prove inadequate in terms of the anticipated addition to the capital stock, and the *ex post* savings-investment equality is re-established through inflation.

In spite of the very favourable propensities and policies described above, Japan was forced to resort to credit creation in order to accommodate the total projected investment activity in the course of development. The amount of over-all net credit creation[4] is difficult to establish. Agriculture and small-scale industry were faced with a highly centralized money market and did not receive substantial amounts of long-term credit. The considerable overlap between Zaibatsu enterprises and the banking system makes it impossible to obtain meaningful estimates of business debt. The government itself, initially handicapped by the absence of a dependable market for its bonds, resorted to deficit financing on a considerable scale.

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[1] Quoted from J. B. Kraus, 'Wirtschaftsgesinnung und voelkisch-politische Grundbedingungen als Voraussetzungen des Japanischen Industrialisierungsprozesses', *Weltwirtschaftliches Archiv*, (1939), p. 47 (translation mine).

[2] 'Industry and thrift are the two chief factors in the production of national wealth, and the Savings Banks have for their aim the encouragement of the spirit of thrift.' C. V. Sale, 'Some Statistics of Japan', *Journal of the Royal Statistical Society* (April, 1911), p. 505.

[3] Postal savings, inaugurated in 1874. saw deposits grow from 28·3 million yen in 1897 to 92·9 million yen in 1908. What is more interesting is the relatively broad base of depositors whose number increased from 1·3 to 8 million over the same period. See G. Wilenkin, *The Political and Economic Organization of Modern Japan*, (Tokyo, 1908), p. 97.

[4] It is understood that net credit creation by the private sector may be offset by the public sector and that government deficits may merely serve to mobilize hoards of an equivalent amount.

Japan's national debt is presented in Table 7; on the average, it amounted to nearly 30 per cent of the national income during the nineteenth century. A variety of guises for outright credit creation was employed. Old Tokugawa feudal debts were funded by means of a 23 million yen bond issue; in 1876 samurai pension claims were commuted into instruments of credit. In neither case was there an exchange for previously existing purchasing power. The entire domestic debt outstanding in 1878 was credit-financed. The 12½ million yen Public Works Loan of that year, however, initiated efforts to place a portion of the debt with the public. A precise breakdown is not available; but a closer examination of the 1883 twenty million yen Nakasendo Railway Loan,[1] for instance, yields the interesting fact that it was 'over-subscribed' to the extent of 18 million yen; 'individuals' applied for 30 per cent, 'banks and companies' for 68 per cent of the total. Since profit receivers participated as 'individuals' and ploughed back their profits as 'companies', we can assume that banks accounted for the lion's share of the latter. Probably 50 per cent of the national debt incurred during the nineteenth century resulted in the creation of new purchasing power.

It should not be surprising that all available indices record price increases for these decades; what is surprising is that these increases were not more substantial. Tsuru's figures show an increase in the wholesale price level of 138 per cent from 1868 to 1900, an increase in the cost of living of 148 per cent from 1873 to the turn of the century.[2] Yamada obtains a 77 per cent advance in wholesale prices from 1875 to 1900 [3] and Ohkawa's widely-quoted index shows a similar, more modest increase.[4] A moderate amount of inflation may, of course, serve a useful purpose in 'shaking up' an economy, loosening old moorings and providing fresh incentives. In Japan, credit creation resulted simply in moderate price increases and additional forced savings without culminating in spiralling transfers of resources from savings and production to speculation and hoarding.[5]

Except for the years preceding the Satsuma Rebellion the banking system exercised restraint and made a significant contribution to stability. The Bank of Japan assumed all power of note issue in 1882 and succeeded in recalling the bulk of earlier wild-cat issues. Selective credit controls were used to ensure the deployment of credit to bottleneck areas where it might do the most good. The extent of specialization within the powerful quasi-official banking institutions may be cited here.The Yokohama Species Bank (1880) was set up to serve the foreign trade sector; the Hypothec Bank (1896) – working through prefectural Agricultural and Industrial Banks – to make long-term loans on the security of immovable property to agriculture and small-scale industry; the

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[1] Japan, Department of Finance, *The History of the National Debt* (The Government Press, Tokyo, 1893), *passim.*

[2] Shigeto Tsuru, 'The Development of Capitalism and Business Cycles in Japan, 1868–1899', an unpublished doctoral thesis, Harvard University, 1940, Appendix.

[3] Yuzo Yamada, 'Nippon Kokumin Shotoku Suikei Shiro' (Estimated Japanese National Income), *Oriental Economist* (Tokyo, 1951), p. 57.

[4] From working papers at the Hitotsubashi University, Tokyo, Japan.

[5] Attempts to develop beyond one's means need not, of course, result in domestic inflation, if the foreign balance can serve to cushion the effects of the extra demand created. Nineteenth-century Japan was, however, neither willing nor able to make extensive use of other people's savings to supplement her own. Prior to the adoption of the Gold Standard in 1899 only two long-term loans totalling less than 17 million yen were floated abroad. The bulk of the inflationary pressure remained at home.

Industrial Bank of Japan (1900) to service the needs of manufacturing establishments. Most of the 'private' banks were in the hands of the Zaibatsu whose close links with the government have been alluded to above. Firm control over the alternative sources of finance by the government and 'dependable' groups outside the government assured the effectiveness of credit rationing in realizing any established hierarchy of investment priorities.

Table 7 *Outstanding National Debt of Japan*
(Million Yen)

Year	Domestic	Per Cent of Total	Foreign	Per Cent of Total	Total
1877	213	94	13	6	226
1897	399	100	0	0	399
1907	1088	48	1165	52	2254
1914	991	40	514	60	2506
1924	3356	69	1506	31	4863
1930	4476	75	1479	25	5955

Source: From Yasuzo Horie, 'Japan's Balance of International Payments in the Early Meiji Period', *Kyoto University Economic Review* (April, 1954).

Nevertheless, the basic explanation for the avoidance of cumulative inflation must be sought in the fact that Japan was able to put such a large share of her programme on a pay-as-you-go basis. If the excess of purchasing power over real resources at any one period of time can be contained, primary pressures are reduced; and if there are favourable anticipations based on confidence and culturally-conditioned obedience – as well as an absence of union pressures and escalator clauses – the impact of such pressures as do result is minimized. Small capital expenditure called forth increases in output sufficiently quickly to absorb unavoidable pressures for increased consumption, and sufficiently large to free resources for an over-all development effort. The major responsibility for enabling Japan to avoid the hard choice between stability and development must be assigned to the fiscal policies she pursued.

New York

SHORT ARTICLES

THE APPOINTMENT OF PORTS[1]

By R. C. JARVIS

Since the exchequer port-books first came to light in 1911,[2] they have increasingly attracted the attention of scholars, both by way of critical examination of them as primary sources,[3] and also in the editing and publication of these sources themselves[4] or of statistical or other material derived from them.[5] It can now be seen, however, that some at least of the earlier work done on these port-books is vitiated by a failure to recognise that the 'extents bounds and limits' of any particular port at any particular time may quite possibly differ from the 'extents bounds and limits' of the 'same' port at another period. Although this fact is now recognised,[6] there has not as yet been any detailed examination of the procedure of the appointment of ports, nor of the authority and process by which port 'limits' may have been changed from time to time. It is the purpose of this present paper to suggest the lines such an examination should take.

II

The primary meaning of the word 'port' in commercial and popular parlance is a place to which ships resort to lade or unlade. Where any control is exercised by a harbour dock pilotage conservancy or other authority, the 'limits' of the port may have been defined, by statute or otherwise, for that or for any other purpose. In fiscal administration it has been found necessary to 'appoint' a port and declare its limits, and the limits of the port thus appointed for fiscal purposes may not agree with the limits of the port as appointed for any other purpose. In the result, the whole coast of the British Isles, including the islands lying off the coast, the Channel Islands and the Isle of Man, has, for fiscal purposes, been divided into sections, each section being a 'port' (in this technical sense), based for administrative purposes upon a harbour-town by which name the whole 'port' is administratively known.

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[1] Throughout this paper the word 'port' is used as equivalent to *portus maris*, and not in any sense of town (e.g. port-reeve, port-way, port-meadow).

[2] They were discovered by Henry Atton, the Customs Librarian, and Hubert Hall, the secretary of the Royal Commission on Public Records, *First Report*, *Appendix* I, part i, (Cd 6395/1912), 45 and 47.

[3] 'An account of the port-books', *ibid.* 45–47. (See also N. S. B. Gras, *ibid.* 47–9, and I, part iii [Cd. 6396/1912], 160–1); V. B. Redstone, 'Ipswich Port Books', *Suffolk Institute of Archaeology*, XIV (1912), 238–42; G. N. Clark, 'Note on the Port Books', in *Guide to English Commercial Statistics: 1696–1792* (1938), pp. 52–6; N. J. Williams, 'Francis Shaxton and the Elizabethan Port Books', *English Historical Review*, LXVI (1951), 387–95; J. H. Andrews, 'The Customs Ports of Sussex, 1680–1730', *Sussex Notes and Queries*, XIV (1954), 1–3; N. J. Williams, 'The London Port Books', *Transactions of the London and Middlesex Archaeological Society*, XVIII (1955), 13–26; and J. H. Andrews, 'Two Problems in the Interpretation of the Port Books', *Econ. Hist. Rev.* 2nd ser. IX (1956), 119–22.

[4] E. A. Lewis, *The Welsh Port Books, 1550–1603* (Hon. Society of Cymmrodorian, 1927), and R. W. K. Hinton, *The Port Books of Boston* (Lincoln Record Society, 1956).

[5] T. S. Willan, *The English Coasting Trade: 1600–1750* (Manchester, 1938); J. R. Jones, 'Some Aspects of London Mercantile Activity during the Reign of Queen Elizabeth', in *Essays in Honor of Conyers Read*, ed. N. Downs (Chicago, 1953); J. H. Andrews, 'The Thanet Seaports, 1650–1750', *Archaeologica Cantiana*, LXVI (1954), and 'Trade and Ships of Brighton in the Second Half of the Seventeenth Century', *Sussex Notes & Queries*, XIV (1954).

[6] J. H. Andrews, 'Two Problems in the Interpretation of the Port Books', *loc. cit.* 121–2; and R. C. Jarvis, 'Sources for the History of Ports', *Journal of Transport History*, III (1957), 82.

One of the first to think systematically about this aspect of ports was Sir Matthew Hale, Charles II's chief baron of the exchequer and later his chief justice. Hale's views were definitively stated [1] in his *Treatise in Three Parts*,[2] written soon after the Restoration [3] but left still in manuscript at his death,[4] and *Pars Secunda*, entitled *De Portibus Maris*, is of considerable interest.

Chief baron Hale distinguished clearly between 'havens' on the one hand and 'ports' and 'creeks' on the other. The word 'haven' denotes a physical characteristic: it applies to a place of the large receipt of ships. The word 'port', on the other hand, denotes additionally a constitutional and administrative characteristic. It is *quid aggregatum*, consisting of 'somewhat that is natural, viz. an access to the sea ... where ships may safely lye; somewhat that is artificial, as keys and wharfs ...; and somewhat that is civil, viz. privileges and franchises, *jus applicandi*, *jus mercati* and divers additaments given to it by a civil authority'.[5] The creeks of the sea, which are the little inlets, Hale distinguished from the 'creeks of a port, [which] are by a kind of civil denomination such'—havens that 'lack the superinduction of a civil signature'.

According to Blackstone,[6] 'it hath always been held that the king was lord of the whole shore'; hence, for the purposes of military security and in order to safeguard his revenue, the king had the prerogative of appointing certain havens to be ports, that is to say, to be the places through which alone persons and merchandise might pass into or out of his realm. A port in this legal and civil sense might be appointed in one of two ways: either (a), by patent or charter, or (b), in the king's own desmene, by grant and proclamation. Thus Henry II granted to the abbot of Whitby *portum maris cum toll et team et cum omnibus libertatibus et consuitudinibus ad portum maris, pertinentibus viz. apud Whitby.*

Because the ports were thus first assigned by the crown, and since to each of them a port mote or *curia portus* was incident,[7] Coke placed the grant or appointment of a port among the franchises or liberties. Thus, even from early times no haven could be erected into a port but by lawful prescription, and if it were, the liberty or pretended liberty was seizable *quo warranto.*[8]

An 'appointed' port, therefore, became early jealous of its privileges, and was quick to challenge, on the basis of charter or patent rights, any claim to lade or unlade a vessel at any particular place within the limits of the whole extent of the port otherwise than at places within the limits of the port-town itself. Thus, in 1304 Newcastle contended that any vessel lading or unlading at Tynemouth was to the prejudice of the burgesses of Newcastle-upon-Tyne,[9] as the port of Great Yarmouth[1] did, also in the fourteenth century, in relation to Little Yarmouth and Gorleston.[2]

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[1] An earlier draft of this treatise has been printed by Stuart S. Moore as Chapter XIV of *A History of the Foreshore* (1888).

[2] Included in Francis Hargrave, *A Collection of Tracts* (London and Dublin, 1787).

[3] G. Burnett, *Life and Death of Sir Matthew Hale* (1682), p. 114.

[4] See B. M. Harl. MS. 97 and 98, and Add. MS. 30228.

[5] 'Treatise', *Pars Secunda*, cap. ii.

[6] *Commentaries*, Bk. I, cap. vii.

[7] This is not affected by the issue that a port-mannimote or 'portman's-court' may, of course, have been held not only in port-towns as generally rendered, but also in inland towns.

[8] *Cal. Pat. Rolls* (*Hen. III*), *1232–47*, pp. 292–3.

[9] *Rotuli Parliamentorum*, I, 165a.

Furthermore, to those harbour-towns that had been thus appointed 'ports'—and to those harbour-towns alone—the king's cocquet (seal) was supplied, the king's beam set up, and the king's weights furnished. In this manner alone could customable merchandise be properly weighed for duty, and the trade properly authenticated by the cocquet. Vessels, therefore, should lade and unlade only at ports thus assigned and appointed—*ibi, et non alibi*. Any vessel in the overseas trade, lading or unlading at any harbour that had not received the 'civil signature' of a port, or at a place outside the limits of an assigned or appointed port—that is to say, lading or unlading at a place without the king's cocquet the king's beam and the king's weights—was liable to summary arrest. Already by the 15th John, the pipe roll provides an example of the arrest of a vessel *quae applicuit alibi quam in portu*.[3] In 1432 it was enacted a felony for three years to carry merchandise of the staple into any 'creek' rather than into an assigned or appointed port.[4]

This procedure, however, necessarily required the ports that had received this 'civil signature' to be not only properly designated and appointed as such, but also to be properly delimited and defined. Even the earliest surviving texts testify the need to delimit the designated ports not only in terms of length along the coast but also in terms of depth inland. For example, an instrument attributed to Cnut and ascribed to the year 1203 appointed and delimited the port of Sandwich as extending.

> *ab utraque parte fluminis cuiuscunque terra fit a Pipernaesse vsque Maercesfleote, ita vt, natante nave in flumine cum plenum fuerit, quam longius de nave securis parmula quam Anglici vocant Tapereax super terram proiici* [*possit*].[5]

Although this policy of thus defining the 'extents, bounds and limits' of the designated ports had early made for a simplification in fiscal administration, the passage of time made it clear that later grants should be 'more large and certain' (as Hale said) if only because the general run of merchants—if not the general run of ship-masters—became less and less concerned with how far exactly a man might throw a taper-axe from the deck of a ship at high tide.

III

Without entering into the finer distinctions between the early local and semi-national customs, it could be said without undue simplification that the customary dues of the so-called royal ports and desmenes accrued to the crown, but in the franchises to the magnates. By the time of the grant in 1275 [6] it was recognised that the *antiquae custumae* were in the nature of a commutation of these dues.

Thus, when consent to this commutation was given by the *communis de Marchaunz*, the latter were in effect foregoing their tenurial right, and were permitting the *custumae* to be collected by the royal officers within their own franchises. Thus, the control of all ports came with time into the hands of the crown.

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[1] *Cal. Pat. Rolls* (*Edw. II*), *1307–13*, pp. 37 and 124; *ibid. 1313–17*, pp. 233, 246, 261–2, 318–9 and 324. The case was more fully argued in Hale, *Pars Secunda*, cap. v.

[2] Gorleston was a parcel of the manor of Little Yarmouth, which latter lay within the precincts of Great Yarmouth, but between it and the sea.

[3] Pipe roll: 15 John, rot. 15b.

[4] *Rotuli Parliamentorum*, IV, 454b (11–12 Hen. VI).

[5] W. Boys, *Collections for an History of Sandwich* (1792) p. 549.

[6] *Parliamentary Writs*, I, 1–2 and 381; and *Cal. Fine Rolls* (*Edw. I*), *1272–1307*, p. 47.

It is not really surprising that in John's Winchester assize of custom in 1203 [1]—the first really national system of customs —the ports were placed, fiscally at least outside the body of the shire. The fiscal unity of the honours had by now been gradually broken down. They had been brought, all but their desmene, within the shire. But if the borough had not fitted very easily into the structure of the shire, the port had fitted even less well. Although the functions of the sheriff were essentially fiscal,[2] the administration of a system of national customs, hence also of the ports, was too great to be laid directly on him. Already by the close of the twelfth century—from the time of the Inquest of Sheriffs (1170) for example—the crown was uneasy at the great power and influence of an official who himself had grown only with the strength and importance of the crown. John provided therefore, in the Winchester assize to assess levy collect and account his *quindecima* from the ports by a procedure entirely outside the scope of the sheriff. Thus, the *quindecima* of 1203 was to be collected by *sex vel septem vel plures de sapientoribus et legalioribus et ditioribus et valentioribus hominibus portus et unus miles et unus clericus*. It was the *miles et clericus et baillivus* who were to enter the records in the ports and give receipts, and the money was to be sent to the *capitalis custos, per cirgrapha contra baillivos*.[3] Thus, the ports came to account to the crown outside the machinery of the shire and without the intervention of the sheriff.

From a study, therefore, of the late-thirteenth-century customs accounts returned into the Exchequer, one finds that various groups of neighbouring harbour-towns were associated in account.[4] This association was sometimes by shire, as for example when the ports of Dorset and Cornwall accounted to Edward I and II. Sometimes, however, the unit of account was a delimited length of the coastline occasionally extending not beyond to the limits of the shire, as for example when the group from Lynn to Yarmouth accounted in the 31–32 and the 32–35 of Edward I,[5] and again in the 2–3 of Edward II;[6] or on the other hand, the group may extend beyond the limits of the shire or disregard such boundaries, or for example when 'Ipswich to the Thames' accounted in 18–19 of Edward II,[7] as 'Yarmouth to Ipswich' in the 39th and 44–48 Edward III [8] and again in 3–4 Richard II. [9]

This grouping of ports into a 'collection' was not by any means new, for John had already had recourse to the practice both for naval and fiscal purposes. His groupings, however, except in the case of the Cinque ports, were not of very long duration, and were in any case not the groupings found convenient for fiscal and other customs purposes.[10]

In assessing and collecting the Winchester assize of 1203, there had to be developed in practice—if somewhat imperfectly developed in theory—a clear distinction between on the one hand the mere coastwise traffic, and on the other the overseas trade of a port. The reference in the text of the assize was to *asportare et ducere mercandisas per mare de loco in locum in terra nostra vel de una terra in alliam.*[1] In practice the distinction had to be between, firstly, the trade of a port with foreign parts liable to the *quindecima*; secondly, the traffic coastwise with other English ports, and hence not so liable; (protections granted for journeys by sea 'to divers places within the realm' were ordinarily granted subject to the vessel not touching any foreign port);[2] and thirdly, indirect foreign trade *via* another English port, when the *quindecima* is accounted at the other English port.[3]

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[1] *Rotuli Litterarum Patentium*, I, 42–3.

[2] *Dialogus de Scaccario*, Ch. II, iii.

[3] *Rotuli Litterarum Patentium*, I, 42–3.

[4] Gras can discover in the early grouping no higher motive of the crown than administrative and financial convenience. *Early English Customs System* (Harvard, 1918), p. 107.

[5] King's Remembrancer: Customs Accounts (E/122/93/2).

[6] *Ibid* (E/122/93/4).

[7] *Ibid.* (E/122/50/12).

[8] *Ibid.* (E/122/7/10 and E/122/190/28).

[9] *Ibid.* (E/122/149/14–5).

[10] F. W. Brooks, *English Naval Force, 1199–1272* (1932), p. 98, has suggested their origin in a general plan of naval strategy following the loss of Normandy.

This distinction in the harbour-towns between overseas trade and coastwise traffic continued to be recognised, and indeed developed, throughout the whole of the fourteenth century. In the first years of Henry IV it was decided to distinguish not only the trade itself, but also the harbours engaged in the trade, that is to say, on the one hand the ports privileged to engage in foreign trade, and on the other hand, such other places as were confined to coastwise traffic. The terms of the statute of 1402 therefore distinguished between *les grantz ports du mier* and the *petitz crykes* (the *crykes et petits arrivails*), and this tended to confirm and develop the doctrine that had been growing up for the dependence of the *petitz crykes* upon the *grantz ports du mier.*[4]

Thus, certain harbour-towns not originally *grantz ports du mier* came in the passage of time, to fall under a form of dependence to the older ports. This in time resulted in a scheme of three-tier grouping, namely, head-ports (which for fiscal purposes were under patent principals), member-ports (under deputies of the patentees), and creeks (where no one was in office competent to control or authenticate overseas trade). This scheme is seen in its most developed form in the late-seventeenth and eighteenth centuries.[5]

A system of grouping harbour-towns in varying degrees of dependence had even earlier been a feature of both fiscal and naval administration. With regard, for example to the Cinque Ports, it has been argued [6] from a Domesday entry [7] that Fordwich owed a service 'on the sea', not to the king, but as a 'member' or 'limb' of a 'head-port', and hence that the head-port/member-port pattern dated from before the Conquest. The liability of the five ports to the crown grew out of the earlier sea-service and the ship *fyrd* of Saxon times. This liability, which lapsed elsewhere than on the south-eastern seaboard, was preserved there solely by reason of military security and the close proximity of the continental ports. The crown was content that certain ports, sited at convenient intervals on the south-east coast, should be brought under a form of ship-service. These ports came thus to hold their franchise by a form of military tenure. In the passage of time, however, the five main ports came to view the ship-service, if not as something onerous or too heavy to bear, at least as a burden the incidence of which could be redistributed; they therefore in their turn admitted to the enjoyment of the privilege the neighbouring coastal places in return for service held due to the head-port.

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[1] *Rotuli Litterarum Patentium*, I, 42–3.

[2] *Cal. Pat. Rolls* (*Edward II*), *1317–21*, pp. 122, 597–8, etc.

[3] *Abbreviato Placitorum*, p. 95; Gras, *op. cit.* p. 49; cf. also *Cal. Close Rolls* (*Edward III*), *1364–8*, pp. 226–7.

[4] 4 Hen. IV (1402), cap. 20.

[5] See the complete three-tier scheme of head-ports member-ports and creeks as set out in the books of rates and other handbooks of the period: for example *Index Victigalium* (1670) pp. 50–2; *Book of Rates* (1671) pp. 262–7; *Book of Rates* (1688) pp. 315–9; *Act of Tonnage and Poundage and Rates of Merchandize* (1702) pp. 711–5; *Vectigalium Systema* (1718) pp. 280–6; Henry Crouch, (as to whom, see *Calendar of Treasury Books and Papers, 1731–1734*, pp. 447) *Complete View of the British Customs* (1738) pp. 369–75; and H. Saxby *The British Customs* (1757) pp. 391–5. Dr Andrews is concerned that Crouch is not accurate in all his details (*Econ Hist. Rev.* 2nd ser. IX, 121). The Commissioners of Customs issued a similar warning to their servants two centuries ago.

[6] K. E. M. Murray, *Constitutional History of the Cinque Ports* (Manchester, 1935), pp. 22–3.

[7] Domesday Book, i, f. 12.

The relationship between the head-port and its non-corporate member, originally a private one much like the subinfeudation of knight's service, thus grew up informally, and was not at all created by charter or instrument. It has been conjectured that the earliest members were probably unprivileged, their duty consisting simply of the ship *fyrd*, incumbent on all, which the crown might have directed them to perform under the leadership of the neighbouring port. As the service developed, the members realized that their own service was being used by the privileged ports to obtain for themselves certain chartered privileges from the crown. They therefore claimed to share these privileges under the head-port, and thus neighbouring creeks and coastal villages, rendering service through a port, would be brought into a state of dependence under it,[1] similarly to the process by which the Italian communes extended their power over adjacent villages and neighbouring townships.

IV

Throughout the whole of the fourteenth century we find the word 'port' coming more and more to be used not only to denote a place for the anchorage of ships—Hale's 'haven'—and not only for a haven with a 'civil signature'—Hale's 'port'—but also in a more exact sense, as a technical term denoting a particular delimited length of coastline, based upon a privileged haven— a fiscal 'collection'. In 1303 commissions were issued as to the levy of customs, to appoint deputies and render accounts at the Exchequer, from Newcastle to as far round as Exeter, in terms of lengths of coastline: 'in Lenne and in every place thence by the seacoast to Yarmouth'; in 'Yarmouth and in every place thence by the seacoast to Ipswich'; 'in Ipswich and in every place thence by the seacoast to the mouth of the Thames toward the Sea'.[2] The sheriffs and bailiffs in the counties were to be intendent to the collectors in the ports. This scheme of grouping became quite regular and the ports were defined accordingly.

In a port the principal officials for the crown, the 'three great officers', namely the collector controller and searcher, and also the tonnager and others, were appointed by patent, and they performed their functions throughout the whole defined length of their port. Already by the time of Richard II it was enacted that none of the 'three great officers' of the customs in any port was to have his office for life nor for a term of years.[3] The fact, however, that the measure had to be enacted again and again [4] suggests that the offices were in fact so granted; indeed the act of the 31st of Henry VI recited that notwithstanding the earlier statutes, offices had been granted by the king either for a term or for life, by way of royal letters patent.[5] However, when once the right to perform the office of customer controller or searcher of a port had been granted by patent, what the officer became possessed of, bearing in mind the tenurial nature of certain medieval offices, was almost the freehold of the office, or rather something in the nature of an incorporeal hereditament, held by a tenure somewhat analogous to a kind of serjeanty.[1]

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[1] *Red Book of the Exchequer* (Rolls Series), ii, 714 (1293).

[2] *Cal. Fine Rolls* (*Edw. I.*), *1272–1307*, pp. 466–7.

[3] 12 Ric. II (1388) cap. 2.

[4] 14 Ric. II (1390) cap. 10; 17 Ric. II (1392–4) cap. 5; 4 Hen. IV (1402) cap. 21; and 31 Hen. VI (1452–4) cap. 5.

[5] 31 Hen. VI (1452–4) cap. 5.

Although it had been prohibited to ship merchandise of the staple from any port other than one of the 'great ports',[2] the fact that it was found necessary to re-enact this prohibition in 1433, and again in 1435,[3] suggests that the prohibition was being easily and persistently disregarded, at least at this latter period. It is clear, then, that by early Tudor times overseas trade was being conducted at 'creeks and places where no [patent] customer is resident', and therefore that the patent customer and other patent officials in the *caput portus* were exercising their offices in 'the creeks and places' by means of warranted deputies.[4]

The practice seems to have hardened into an invariable rule, so that by Tudor times the ports had fallen into the three-tier scheme of (1) the *caput portus* where the 'great officers of the port', the collector controller and searcher, were appointed by patent, where the substantive seal *quod dicitur cokett* was lodged, and which accounted to the Exchequer for the customs in respect of the whole of its delimited length of the coast; (2) those other places along the coast where the officers functioned only as deputed by their principals at the *caput portus* and which answered to the Exchequer only through the *caput portus*; and (3) the creeks, being those arms of the sea without any civil signature and therefore at which no competent official was resident and at which no cocket seal was, and hence which were disabled from any overseas trade save upon the specific sufferance of the patent officials at the *caput portus*.

Shortly after an attempt to stiffen the control in the ports, the merchants in 1425 pressed parliament for an indulgence with regard to wools shipped and duty-paid, but subsequently 'perished, lost, or take uppe the see be Enemys'. The scheme at the time as to the payment of the subsidy on goods exported was 'to paie yat oon half att the eend of vi monethes next after the date of yaire cokett; and that other half att ye eend of other vi monethes thenne next folowynge'.[5] It has been conjectured [6] that it was probably in connection with frauds resulting from the indulgence granted in 1428 [7] that a scheme was devised of sending down to each *caput portus* certain parchment books, now known as 'port books', in which the local officers were placed under stringent regulations to record the details of various of the transactions at the ports and their dependent members. This particular procedure will be found to have had an important bearing upon the relative status of the various havens.

With the continuous increase in overseas trade and the great interest now being taken in matters maritime, it was desired to bring into a system what was very near chaos, and in general to regularise and organise the overseas trade so far as it concerned the ports. To this end a statute was brought forward and passed in the 1st of Elizabeth I.[8] This statute was clearly a compromise. In certain respects the law was tightened in the interests of the crown and the crown officials in the ports. In certain other respects some of the late extra-statutory practices were now statutorily approved. For the future it should not be legal to lade or discharge goods in the foreign trade anywhere, even within the limits of a *caput portus*, save at such berths quays or places as the crown should 'assign and appoint' by virtue of commission, in such ports creeks or havens where a customer controller or searcher (or such a one's deputy) had 'by the space of ten years last past been accustomably resident', or such berths quays or places in certain head-ports or their members as the crown should by virtue of a commission assign and appoint for that purpose.

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[1] Sir Wm. Holdsworth, *History of English Law*, I, 246–52 and 424–5. As evidence of the widespread nature of this conception of office in the middle ages, Holdsworth instances the posts held in the common-law courts and chancery, and many of the tenures by serjeanty (I,248).

[2] 27 Edw. III, stat. 2.

[3] 11 Hen. VI, cap. 14, and 14 Hen. VI, cap. 5.

[4] 1 Eliz. I, cap. 11, sec. 8.

[5] *Rotuli Parliamentorum*, IV, 289 and 318; cf. also II Hen. VI, cap. 14–5.

[6] *Royal Commission on Public Records, 1st Report, Appendix*, I, part ii (Cd. 6395/1912), p. 45.

[7] *Proceeding and Ordinances of the Privy Council of England, 1422–29*, ed. Sir H. Nicolas (Rec. Comn.) III, 316 (16 November 1428).

[8] 1 Eliz. I, cap. 11.

New orders were made in the 7th of Elizabeth, 'particularly entered, written and expressed in a Booke, conteyning in nombre fyfteen Leaves, written on both sides and signed in the Begynnyng and endyng with our Signe Manual', and were sent down to 'every Porte Haven and Creeke within this oure Realme'. The court of Exchequer was ordered to send every Hilary and Trinity term to the patent principal of every port a parchment book 'in a Tynne Box, with the Leaves nombred of Recorde', and a like book to every patent officer's deputy 'that have taken any entries of Marchants Inwards and Outwards at any creeke within ten years before the first yere of the late Queen's Majestys Reyn'.[1] Thus, notwithstanding the slight confusion in terminology we have now a clear recognition of the three classes of haven, (1), the port of the patent officer, established by patent, later known as the 'head-port', (2), the port of the patentee's deputy, established by usage, later known as the 'member-port'; and (3), other places, at which entries are not customarily taken, later known as the 'creek'.

It was doubtless this new book of 'Articles Ordinances, Rules and Orders' that expedited the task, initiated by the statute of 1558, of surveying all the various ports, members and creeks, in order to classify them and place the classification on record. Certainly the memoranda rolls of the Michaelmas and Hilary terms of this particular year are rich in port surveys. Yarmouth, Lynn, Poole, Carlisle, Ipswich, Sandwich and Plymouth were all surveyed and delimited. There were however notable absences. Within a year other ports followed, including Bristol, Exeter and Dartmouth, and depositions by commission were taken in respect of Chester, Exeter, and various other ports and their dependent members and creeks. These surveys each had three limbs: (1), they stated the 'extents bound and limits' of the port; (2), they designated the members dependent upon the head-port; and (3), they designated and defined the particular berth quays or places nominated under the act of 1558 to be the 'legal quay' of the port.

'Articles to be Enquired Upon', set forth in detail the instructions to the commissioners in making the survey. They were to ascertain whether the ports were 'commonly frequented and haunted with traffic of merchants and merchandize, both inwards and outwards, and whether it were mete for them to continue for the same purpose'. They were to state at which of the member-ports deputies of the patentees had in fact officiated at the stipulated time, specifying in detail their names and duration of service. As to the 'decayed creeks', they were to ascertain and state how long they had been thus decayed, and from what cause, and whether or not it were necessary for the Queen's Majesty's service 'and for the common wealth of the country thereabouts to repayer the said decayed creek', and if so 'what the charges thereof will be', unless it were that such creeks were 'not mete to be contynued for trafique'.

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[1] Memoranda Roll, 7 Eliz. I, Hilary rot. 319, and *Modern Practice of the Court of Exchequer* (1730) pp. 431 ff. This latter volume included also the 'extent bounds and limits' of all the enfranchised ports of the period. It is described as 'by B. Y. an Officer of the Customs'. Another volume 'By a Gentleman of the Exchequer Office' (1731), appears to be the same work with a new title page. An American scholar, Professor Lawrence A. Harper, in *English Navigation Laws* (New York, 1939, p. 426) says that the work is 'ascribed to Francis Hargrave in a note on the British Museum copy'. But the B.M. copy is not in fact 'ascribed to Francis Hargrave': it is *inscribed* to him. In any case the work was published ten years before Hargrave was born.

V

A number of anomalies and ambiguities had to be removed,[1] and a number of contemporary working lists of ports creeks and landing places have survived.[2] There is, for example, among the state papers, domestic, a list valuable for the purposes of this present study, headed 'The Names of all the Ports with the Creeks and Members where Officers [?of the Customs] be Resident'.[3] Here eighteen ports are listed: Southampton, Bristol, Gloucester, Milford, Boston and Lynn, all with no dependent member; Bridgwater with one; Poole, Exeter, Cardiff, Newcastle, Hull and Ipswich each with two; Yarmouth, Sandwich and Chester, each with four; Plymouth with seven, and Chichester with ten.

It seems clear therefore that it was the intention in the 1st of Elizabeth I to lay out all the ports. Yet nevertheless it appears (if only from the terms of an act of the Restoration) that there remained, presumably by oversight, certain ports creeks and places where the named officers or their deputies 'had then, Time out of Mind, been resident', yet to which no such commission had in fact been sent as the act of 1558 had directed. There was also the additional factor that 'since that time, by reason of the Alteration of Rivers Streams Channels and Sands, some places then appointed are become unfit and useless, and others more convenient and commodious'.[4] It was therefore provided in the Act of Frauds (1662) [5] that the king might from time to time, by commission out of the court of Exchequer, appoint and delimit further ports members and creeks. With the resettlement of the revenue and the revival of interest in prerogative powers, there came a refinement in the technique of the appointment of ports. The extensive port of Plymouth, for example, was re-surveyed in 1661 and again in 1676; and Yarmouth in 1668 and again in 1677; and the legal quays of London were laid down in 1667. In addition the ports of Exeter, Newcastle, Dover, Sandwich, Boston, Lynn, Poole, Ipswich, Chichester, Hull and Carlisle and their members were re-surveyed between 1660 and 1698.

It is of course well-known that the Long Parliament had managed the customs [6] by a parliamentary commission, but at the Restoration Charles II had reverted to the farm. In 1671 the customs were finally taken out of farm [7] and a board of commissioners was appointed.[8] Not only did this board manage the ports in a direct fiscal sense, but they came also, in a considerable measure, to superintend and manage their survey and appointment. In 1670 the Treasury requested from the farmers a list showing each port with its creeks and members,[1] and the new board of customs, from their first appointment to the close of the century, did much to bring the whole *portae regni* systematically under survey. Officers immediately responsible to this board were nominated to the various exchequer commissions (in association, for example, with the mayor and representatives of the principal merchants of the port-town) to survey appoint and delimit the ports, members, creeks, and legal quays. The board's legal technical and administrative officers tendered advice on all occasions of doubt and difficulty, and the board did not hesitate to direct its local officers (for whom they secured nominations to commissions) to appoint a particular port, member, creek or legal quay, and aver its limits, in terms approved of by themselves.[2]

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[1] See the depositions by commission returned into the Exchequer.

[2] *Acts Privy Council*, ed. J. R. Dasent, VII (1558–70), 286–90; State Papers (Domestic), Eliz. I, CXXXV, fols. 1–7, and *ibid.* CXVII, no. 39.

[3] *Ibid.* CXLVI, n. 26.

[4] *Cal. Treasury Books, V (1676–79)*, i, 295–6.

[5] 14 Car. II (13–14 in Ruffhead), cap. 11, see xiv (3–4).

[6] Ordinance, 21 January 1642/3, *Lords' Journals*, V, 567 (not reproduced in Firth and Rait).

[7] C. C. Crews, 'The Last Period of the Great Farm of the English Customs' (unpublished thesis—London University).

[8] Patent Roll, 23 Car. II, 2, No. 1, *dorsa* (27 September 1671).

In general the period was, of course, one of great maritime and commercial development. During the eighteenth century the vessels registered in the outports, for example, increased three-fold in number and four-fold in tonnage. But this development was by no means even. While certain ports rose in importance, others declined. This uneven development occasionally resulted in considerable friction and open dispute, as for example when the head-port of Chester declined to one of quite minor importance while Liverpool, one of its dependent members, rose to become one of the first ports in the kingdom. Chester however, despite its commercial decline, retained its constitutional supremacy, and continued to nominate the principal officers of Liverpool to serve as mere deputies of their Chester principals.[3] Chester even exercised certain disciplinary functions of inspection and superintendence, and the port-books of Liverpool continued to be rendered as from a member of Chester. The legal and constitutional position had been seriously misunderstood at Liverpool from Elizabethan times, and indeed some of the principal men of the town on one occasion rendered themselves liable to the penalties of outlawry on account of their persistence in their errors.[4]

A number of important factors arose in the eighteenth century out of the practice of the appointment of ports. Certain developing member-ports, for example, strove hard to achieve complete independence of their respective head-ports, as Liverpool for example strove against Chester, [5] and Harwich against Ipswich.[6] Certain of the mere creeks strove to become members, that is to say, struggled to achieve the privilege to transact overseas trade as a right and not merely by customs sufferance, and hence to have a Custom House locally instead of at the nearest member-port, as in the case of the Pile of Fowdray (Barrow), [7] Preston [8] and Marazion.[9]

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[1] *Calendar Treasury Books, III (1669–72)*, i. 579.

[2] This emerges from a fairly close study of the various collections of letter-books still preserved in the ports, as to which see *Royal Commission on the Public Records, Second Report, Appendices*, II, part ii (Cd. 7545/1914) 242–8; but see also 'Local Archives of H. M. Customs' in *Bulletin of the Society of Local Archivists*, No. 9 (April 1952).

[3] I have dealt with this more fully in 'The Head Port of Chester and Liverpool its Creek and Member', in *Transactions of the Historic Society of Lancashire & Cheshire*, CII (1950), 69–84.

[4] *Liverpool Town Books, 1571–1603*, ed. J. A. Twemlow, II, 1062.

[5] See note 3 above.

[6] Exchequer. King's Remembrancer: Depositions, 2 Geo. II, Hil. 11.

[7] *Ibid.* Com. 9 Geo. I, No. 6914, and mem. roll, 10 Geo. I, Mich. 120 and Trin. 55. (I have dealt with this more fully in 'The Appointment of Ports in Cumberland...' in *Transactions of the Cumberland & Westmorland Antiquarian & Archaeological Society*, N.S. XLVII, 152–7).

[8] *Ibid.* Com. 33–34 Geo. II, No. 6916, and mem. roll. 33–34 Geo. II, Trin. 6.

[9] Custom House, Penzance: letter-books, Collector (Penzance)to Board (London), 7 May 1763.

Apart, however, from these somewhat local features, the general practice regarding the appointment of ports from the latter half of the seventeenth century and throughout the eighteenth showed a developing technique. Nevertheless, there was a remarkable haziness locally, even as late as the last century, as to the limits of the various ports, the basis of their appointment, the custody or whereabouts of the relative instrument, and so forth.[1] With regard to full contiguity, it was discovered in particular ports, in Newcastle, for example, in 1726 and Whitby in 1729,[2] that certain parts of the coastline had been left unassigned to any port. Full agreement on the terms of appointment of contiguous ports was not secured until the relative commission was made to consist of (or at least to include) the principal customs officials of the particular ports concerned, including the collectors of the head-port and any of its member-ports if that relationship was to be expressed in the return to the commission. There is an example of this when the collectors of Boston Lynn Wells and Wisbech joined together in appointing the limits of Lynn and Wisbech in 1732.[3]

This matter of the seaward limits of a port was of more than academic interest. It was often a very practical matter, for the purposes of inspection, forfeiture, and the processes of the law, to know whether a particular hovering smuggler was within or beyond the limits of a port. It had been established in Holland's case in 1452 that 'all ports are *infra corpus comitatus*', and therefore 'the Court of Admiralty cannot hold jurisdiction of anything done in them',[4] or, as it was expressed two centuries later, 'as no port is part of the sea but of the continent, any case must lie in the court of common law'.[5] It was often necessary, therefore, when a vessel had been seized, to know whether or not she was at that precise time within the limits of the port, or on the high seas. The proper appointment of the limit of the port seawards was a necessary preliminary to this determination, although of course this still left the issue of fact, namely, whether any seized vessel were or were not within those appointed limits. The customs letter-books provide many examples of this type of difficulty[6]. Some of these difficulties were resolved when the practice of 'setting down and settling' the seaward 'extents bounds and limits' of a port in terms of depths was superseded in later returns by the simple terms: 'to a distance of three miles from the low water mark of the coast'.

With regard to delimiting ports and legal quays, landwards, by reference to some permanent and physical characteristic, not every port was so fortunate in a distinctive natural feature as the port of Barnstaple, which extended northwards as far as 'a Rock in the sea called Mortstone, adjoining the Parish of Morthoe',[7] or as the port of Chichester which extended as far as 'the Hermitage Bridge near Emsworth on the farthest confines of Sussex, westwards'.[1] Not quite so precisely, Plymouth went westwards from 'a Headland commonly called Rame Head in a supposed direct or right line unto a small fishing town or village called Wrickle', but did not specify to what point exactly in Wrickle it extended.[2] The matter was clarified when the limits were extended to the next main topographical feature, namely, 'unto the east of the mouth of the River called Seaton', just over three miles along the coast.[3]

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[1] See for example, Custom House, Hull: letter-books, Collector to Board, 11 June 1763. The officials at Hull appear to have been unaware of the special exemption of that port from certain of the provisions of the acts of 1558 and 1662 (cf. 1 Eliz. I, cap. 11, sec 2, and 14 Car. II [13 & 14 Car. II in Ruffhead] cap. 11, sec. 14), and Custom House, Maldon: *ibid.* 25 July 1815.

[2] Custom House, Newcastle: *ibid.* 6 September 1726, 12 November 1731, 24 April 1752; and Custom House, Whitby: *ibid.* 10 July 1729 and 29 September 1730.

[3] Exch. K.R. Com. 6927 and mem. roll 5 Geo. II, East 2 add.

[4] *Year Book, 30 Hen. VI* (Holland's case: Earl of Exeter).

[5] *Reports of Sir Henry Hobard* (1641), p. 108 (Don Diego, Ambassador of the King of Spain *v* Jolliff, Tucker and Sir Richard Bingley).

[6] Custom House, Whitehaven: letter-books, Collector to Board, 29 August 1744; see also *ibid.* 7 September 1745, and Custom House, Caernarvon, Beaumaris letter-books, Board to Collector, 1 June 1758.

[7] Exch. K. R. Com. 6199 (29 Car. II. East).

In instances where such readily recognisable features were not available, particularly in the delimitation of the legal quays, some such mark or boundary post had to be introduced, as when a landing place in the port of Lancaster was defined in 1739 as extending 'from a certain post or boundary, fixt over against a certain close or field called the "Crow's Nest" on the south, markt "S. 1739", to a certain other stake or post or pillar fixt on the North, markt "N 1739"'.[4]

We might therefore conclude: the franchise of a port was held to be among the ancient prerogatives of the crown; the crown early took the administration of ports into its own hands; certain havens were appointed to be ports, but certain others were not; fiscally the ports were placed outside the body of the shire, and accounted for customs direct to the Exchequer; unfranchised havens were grouped under franchised ports, not by a process of subinfeudation (as in the case of the grouped Cinque ports) but rather as an administrative device for account to the Exchequer; by reason of the tenurial nature of office, the patent principals of the enfranchised ports came to acquire a right to the fees accruing throughout the whole extent of the port, and hence in the unfranchised havens; this fact gave rise in time to a three-tier system of head-port member-port and creek, the member being latterly dependent upon the head-port only in respect of fees and hence for the nomination of the three principal officials. Commissioners of Customs, although themselves patronage officials, worked hard to eliminate patronage and abolish sinecure posts;[5] the system continued [6] until the statutory abolition of fees, [7] when although not formally extinguished, the whole system of port-dependence became meaningless. Some years before the extinction of the court of Exchequer [8] the authority to appoint ports was transferred to the Treasury,[9] but has lately been vested in the Board of Customs and Excise.[10]

London

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[1] *Ibid.* 6501 and mem. roll (32 Car. II, Mich. 2).

[2] *Ibid.* 6199 (29 Car. II, Trin.).

[3] *Ibid.* 7132 (see also mem. roll, 4 Vic. East 2).

[4] *Ibid.* 6928 (see also mem. roll. 12 Geo. II, Hil. 65, add.).

[5] 38 Geo. III, cap 86 (it contained authority to apply fees received from vacant offices to the augmentation of a fund to superannuate the officials who remained. See also Customs Library: board minutes, VI [1792–1814] 277–8).

[6] 46 Geo. III, cap. 82.

[7] 47 Geo. III, sess. 1, cap. 51.

[8] 36–37 Vic. cap. 66, sec. 3.

[9] 16–17 Vic. cap. 107, sec. 9.

[10] 15–16 Geo. VI and I Eliz. II, cap. 44, sec. 13(1).

THE FORTUNES OF SOME GENTRY FAMILIES OF ELIZABETHAN SUSSEX

By J. E. MOUSLEY

IN a recent number of the *Economic History Review* an appeal was made for a study of the fortunes of a group of gentry families selected according to some firm and tangible qualification in their status.[1] As a contribution towards this project, a number of Sussex families have been thus singled out and scrutinised. The first condition for selection has been that all the families must have contributed at some time during the reign of Elizabeth to the ranks of the important holders of office in the county, namely of the positions of deputy lieutenant, county member of parliament, sheriff or justice of the peace. A further qualification has been that any family under consideration must have had a representative alive and mainly resident in Sussex in 1580.[2] Families of office-holders who were clergy have not been considered, even when such office-holders were Sussex men: the clergy are held to have belonged to a different social group.

The result of this winnowing has produced 70 families and among these are seven titled families who really belonged to the peerage, the Sackvilles at any rate after 1567. Attached to these 70 families are 17 cadet branches which, for some purposes, have been considered separately, bringing the total number of families or family branches up to 87.

It is still an open question whether younger branches of peerage families are to be treated statistically as gentry or as inhabiting a kind of limbo, since they can hardly be classed as peerage: perhaps differences of opinion as to their rightful place in the social hierarchy, as well as over that of such newcomers to the peerage as the Sackvilles, require that they should be left on one side when mere gentry are being considered, even though they may end by being ignored altogether. At any rate, there are only two cadet branches of noble families in Sussex which are here affected by this question, namely the Sackvilles of Seddlescombe and the Sackvilles of Chiddingly, both of which were represented on the commission of the peace for Sussex in Elizabeth's reign and were primarily resident in the country in 1580. These two branches have been ignored in tabulating statistics, as have the seven peerage families themselves; so that altogether, instead of 87 families or family branches, 78 are available for study as 'gentry' within the given terms of reference.

In an attempt at a general survey of the relative economic positions of these families and of trends in their fortunes—at least as regards their landed wealth—a variety of official sources has been used. The most obvious primary material would seem to be the subsidy rolls, *inquisitions post mortem*, feodaries' surveys and wills. The evidence of the subsidy rolls may be dealt with first.

It is, of course, common knowledge that, as time went on, the assessments became increasingly nominal.[3] The very system of valuation and collection employed was sufficient to guarantee this, since the commissioners were, as a rule, themselves the leading gentry of the county who should have borne the main burden of taxation.[1] By the end of Elizabeth's reign, according to Dowell, a subsidy had become virtually a grant of £80,000 as against one of about £100,000 at her accession, to be defrayed by the local fiscal unit, nominally at the rate of four shillings in the £ on lands, or 2/8d. in the £ on goods, but in fact according to custom, except where death, removal or a serious diminution of estate necessitated a revision of the previous rates of assessment.[2]

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[1] J. P. Cooper, 'The Counting of Manors', *Econ. Hist. Rev.* 2nd ser. VIII (1956), 381.

[2] This date was chosen so that families dying out or leaving Sussex early in the reign would not be included, neither would those coming to settle towards the end of it.

[3] H. Miller, 'Subsidy assessments of the peerage in the sixteenth century', *Bulletin of the Institute of Historical Research*, XXVIII (1955), 15 *et seq.*

The detailed study of a particular subsidy roll for a particular hundred suggested to Professor Tait that it was the failure of subsidy assessments to keep pace with the growing wealth of the country and not their actual reduction that must have provoked criticism by Elizabethan statesmen, since Salford Hundred as a whole paid more in 1599 and 1600 than, for example, in 1563.[3] But perhaps it is dangerous to generalise from evidence relating merely to one hundred. So marked is the tendency of assessments for many Sussex families to decline between 1546 and 1626, or even within the Elizabethan period, that it may be doubted whether the commissioners were, as a rule, as conservative as Professor Tait imagined. They seem not merely to have ignored many rising fortunes, but even, on an average, to have reduced the general liability for taxation; and while their assessments may sometimes reflect genuine distress and economic hardship, it is certain that in other cases they are quite misleading.

Richard Covert, Esquire, of Slaugham, for example, who was assessed at £100 in lands in 1546, 1560 and 1563, had his lands valued only at the rate of 100 marks in 1572, and of £60 in 1576, and his son, Sir Walter, was rated at a mere £50 in 1626. But Sir Walter left more than 11 manors to his father's seven, and he found the means to build an imposing mansion for himself in or about the year 1600 at Slaugham.[4]

To this instance could be added those of the families of Pelham of Laughton, Culpepper of Wakehurst, Gunter of Racton and Selwyn of Friston, all of whose subsidy assessments declined over the years, though they were increasing their manorial property according to their *inquisitions post mortem*.

Apart from this tendency of subsidy assessments to decline, there are other difficulties in making use of them. To begin with, while, in all, a considerable number of sixteenth-century subsidy rolls for the various rapes of Sussex survive, there are very few subsidy years for which complete rolls are extant for the entire county.[5] From the end of Henry VIII's reign to the beginning of Charles I's, there are only four complete or nearly complete rolls with subsidy assessments and names for the whole county, namely those for the years 1546, 1560, 1572 and 1626.[6] It is fortunate that these four are so well spaced out chronologically.

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[1] F. C. Dietz, *English Public Finance, 1558–1641* (1932), p. 382 *et seq.*; S. Dowell, *History of Taxation* (1888), I, 155 *et seq.*

[2] Dowell, *op. cit.* I, 145, 150, 155.

[3] J. Tait, *Introduction to Taxation in Salford Hundred, 1524–1802* (Chetham Soc. Pubns. 1924), especially pp. 29–30.

[4] P.R.O. E. 179/190/225, 267, 274, 283, 299; E. 179/191/377a; C. 142/191/70 and C. 142/490/187; J. H. Cooper, 'The Coverts', (Part 1), *Sussex Archaeological Collections*, XLVI (1903), 170.

[5] For a list of Sussex subsidy rolls, see P.R.O. catalogue, Press 7, vol. 34, Exchequer K.R. Subsidy Rolls.

[6] P.R.O. E. 179/190/225 (an assessment of 1546 on all six Sussex rapes—though for Pevensey Rape showing only the sums required from each person—for the 'loving contribution' of 1546, based on the assessment for the first part of the subsidy granted in 1545 and made early the following year: since the commissioners for the 'loving contribution' were given discretion to ignore those 'notably decayed', while those with less than 40s. p.a. in lands or £15 in goods

Another problem is whether the only assessments to be noted are those for the head of each family or family branch in the subsidy year in question, or whether the assessments of relatives are also to be taken into account, and, if so, what degrees of kinship should be allowed for. The solution adopted here has been to note the ratings of heads of families and of their wives if these are separately assessed, or of their sons. Also assessments of widows of sometime heads of families are noted. When, as occasionally happens, a relative, apparently also a guardian, appears on the subsidy roll in the place of his ward during the latter's minority, his assessment is taken to represent that of the family.

Further, in dealing with some of the more obscure families, the usual genealogical problem of identification arises, particularly when the family in question was not well-established in one district and its place of residence is uncertain. In such doubtful cases, where the identity of the person mentioned in subsidy rolls is questionable, his assessments have not been used as evidence.

There is the difficulty, too, that sometimes assessments for particular families are for goods in one year and lands in another, and, in other cases, assessments are for goods throughout, even though some land was undoubtedly owned. No attempt has been made here to adopt two scales of values—for lands and for goods—and only assessments on lands are noted: landed families whose accumulating wealth was invested in moveables do not, therefore, appear in this survey of subsidy assessments in a very favourable light, if, indeed, they appear at all. But there are other clues to their wealth which will be discussed later.

Again, quite apart from the known obstacle that subsidy assessments tended to decline during the later sixteenth century and early seventeenth century, the rates of assessment, even for a group of gentry families in one county in any single subsidy year, were not strictly comparable. For one thing, there was the obvious likelihood that subsidy commissioners for the individual rapes or major divisions of the county in question would under-assess themselves. Further, there is every possibility that recusants or suspected Roman Catholics were over-assessed.[1]

Yet, in spite of all these difficulties, there appears to be no other source within this period which covers anything like the same number of families in all, or which has the same continuity over several generations, and it may be that, if used with extreme caution and compared with material from other sources, the evidence of subsidy rolls is not entirely worthless.[2]

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were not to be pressed, probably fewer assessments were made for the 'contribution' than for the subsidy granted in 1545, which was payable by persons of smaller means, *L. & P. Henry VIII*, XXI, pt. 1, no. 844; *Statutes of the Realm*, III, 1020–1); P.R.O. E. 179/190/264–9 (an assessment of 1560 for the second part of the subsidy granted in 1559; complete, except that for Arundel Rape only the commissioners' certificate survives); P.R.O. E. 179/190/283 (an assessment of 1572 on all six rapes for the second part of the subsidy granted in 1571); P.R.O. E. 179/191/377a (an assessment of 1626 on all six rapes and the city of Chichester, which is treated separately, for the second of two subsidies granted in 1625).

[1] The subsidy act of 1625 actually provided that persons convicted of or indicted for popish recusancy should be taxed at double rates (*Statutes of the Realm*, V, 9–10). Accordingly, some recusants are so described on the 1626 rolls of assessments for Sussex, e.g. for Pevensey Rape (P.R.O. E. 179/191/377a).

[2] It might have been thought that a simple way of using the subsidy rolls to discover approximately whether the Elizabethan office-holding gentry in any county were, as a whole, on the upward or downward grade economically between the end of Henry VIII's reign and the beginning of Charles I's, would have been to have estimated the total sum levied from all the relevant families in each subsidy year between these dates for which all the rolls are available, and to have compared it with the total sum paid by the whole county. In this way, the liability of this class relative to the liability of the county as a whole could have been seen and would

In the first place, they can at least be used to establish what were the assessments, however partial or impartial, for the lands of each family—as distinct from their absolute value—relative to the assessments for those of others for individual subsidy years. Study of the known assessments on lands for all the relevant Sussex families for each of the four years, 1546, 1560, 1572 and 1626, reveals that in 1546 the highest assessment, that of Shelley of Michelgrove, was at £400; in 1560 the highest assessment was one of £200 on the Gages of Firle, and in 1572 one of £100, again on the Shelleys of Michelgrove, while in 1626 the highest assessment was on Covert of Slaugham at the rate of £50. The lowering in the scale of assessments of such families as the Shelleys of Michelgrove, the Dawtreys and the Gages of Firle, is remarkable, but in view of the general decline in the rate of subsidy assessments and the absence of figures for certain families in individual years, the evidence of the rolls as it stands is of limited value.

Therefore, secondly, and perhaps much more significantly, these rolls may be used to establish the relationship between the assessment on the lands of each individual family and the average assessment on lands for all the relevant families which were assessed, comparing them for each subsidy year over a period of subsidy years. In this way it can be seen whether a family's assessments were relatively higher or lower from time to time. The results of this method of computation appear in Appendix I.

It is notable that, although the number of families, excluding peers and their cadet branches, for which assessments exist varies only from 37 in 1546 and in 1560, to 44 in 1572, reverting to 37 in 1626—figures which, after all, do not fluctuate to extremes—the average rate of assessment fell from £60 (to the nearest £) in 1546, to £48 in 1560, £33 in 1572, and £14 in 1626—a drop of more than 75 per cent. Hence, the decline in the rates of assessment for individual families is not to be taken at face value, as for example, in the case, already quoted, of the family of Covert whose assessments dropped from £100 in lands in 1546 to £50 in lands in 1626—assessments, however, which remained, as was fitting in their case, above average throughout.

In interpreting the figures contained in the subsidy rolls, an attempt has been made in Appendix I, first to show how many families or family branches among those studied, and for which assessments on lands exist in any of the four selected subsidy years, were assessed at rates above the average or at rates below it, and how many were assessed at rates rising from below average to above it over the years, or declining from above to below. Such a method of analysis renders the following results: of the 78 families or family branches under consideration, 12 have no assessments on lands for any of the four subsidy years here in question, so that there are only 66 families for which assessments exist:[1] of these, 35, or more than half, were assessed at rates consistently below average, and 16, or nearly a quarter, were assessed at rates consistently above; the assessments of the remainder fluctuated above and below the average rates.

These figures are not surprising. But it should be noted that, in the absence of further information, the classification of some of these families rests on no more than two subsidy assessments or even one, in which case, of course, no

surely have had some bearing on the facts of the economic situation. But, unfortunately, in the case of Sussex, the movement of families, the demographic factor and the great changes in the size and composition of the commission of the peace in the Elizabethan period would mean that such a calculation could have little real value.

[1] The discrepancy between this figure and the ones mentioned above for individual subsidy years is due to the fact that different families were assessed in the four different subsidy years under review.

movement is discernible, although all the rolls for the relevant years have been carefully examined. Sometimes the gaps can be explained by non-residence in the county, for example in the case of the family of Churcher for which there is no assessment on any of these rolls before 1626, and which appears to have settled in Sussex only after 1572: sometimes the assessments for certain families were on goods in some years, as, for example, in the case of the Cowper family,[1] or almost throughout, as in the case of the family of Shelley of Patcham and Lewes.[2] But at other times it is difficult to understand why particular names did not appear on the rolls.

It might, perhaps, be objected at this point, that such a rough-and-ready approximation makes no distinction between families assessed at just above or below average and those well above or below; that it places too much weight on one or two assessments in some cases and that it does not throw any light on the trend of subsidy assessments among those families whose rates did not rise from below to above or sink from above to below the level of average assessments over the years. Yet, the necessary additional information is not far to seek, and, as for the objection that too much emphasis is laid on one or two isolated assessments in classifying families, the bracketed figure beside each name entered in Appendix I shows on how many assessments each particular classification is based and therefore what weight may be attached to it.

The conclusions drawn from the subsidy rolls are summarised in a general table on economic trends among the families under review.[3] Where the evidence of these rolls seems of little value, this is indicated in Appendix I. But sometimes a piece of fragmentary information from one source acquires further significance when placed alongside other types of evidence.

As a supplement to the subsidy rolls, *inquisitions post mortem*, checked by reference to relevant feodaries' surveys and wills, have been used as evidence of trends in landownership. The defects of *inquisitions post mortem* as source material for information on landed estates are well known;[4] yet, defective as they are, they appear to be indispensable. It has been shown that although they were intended to embody a comprehensive survey, county by county, of all real estate, held by whatever tenure, whereof every deceased tenant-in-chief of the Crown died seized, in fact, many *inquisitions post mortem* that should exist appear either to have been lost, or never to have been taken at all. Moreover, sometimes an individual is known from other sources to have held lands in several counties, yet an *inquisition* for only one or two of these has survived.[5]

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[1] John Cowper of Ditcham in West Harting, Dumpford Hundred, Chichester Rape, was assessed at £70 in goods in 1546 (P.R.O. E. 179/190/225); his son was assessed at £12 in lands in 1572 as of the same address (P.R.O. E. 179/190/283).

[2] Richard Shelley of Patcham, Whalesbone Hundred, Lewes Rape, was assessed at £100 in goods in 1546 (P.R.O. E. 179/190/225); his son, John Shelley, as of the same, was assessed at £50 in goods in 1560 and again in 1572 (P.R.O. E. 179/190/267 and 283); his grandson, Henry Shelley, as of the same, at £4 in goods in 1626 (P.R.O. E. 179/191 377a). However, John Shelley of Whalesbone Hundred, Lewes Rape, was assessed at £6 in lands in 1546 (P.R.O. E. 179/190/225).

[3] Appendix 2.

[4] H. E. Bell, *Court of Wards and Liveries* (Cambridge, 1953), pp. 54 *et seq.*; C. G. Crump, 'A note on the criticism of records', *Bulletin of the John Rylands Library*, VIII (1924), 142 *et seq.*: H. Miller, 'The peerage, 1485–1547' (University of London M. A. thesis, 1950), ch. 4.

[5] E.g. the will of Anthony Pelham of Buckstepe, who died 22 November 1566, refers generally to his lands in Kent, Sussex, Surrey, Dorset, Lincoln, Northumberland, York and 'elsewhere within the realm of England'. His *inquisitions post mortem* refer only to lands in Surrey and Sussex. Between them the *inquisitions* mention only four manors, all in Sussex. The only manor specified in the will, is however, one of these (P.C.C. 6 Stonard; P.R.O. C 142/145/12; *Suss.*

Thus one can never be sure that any single *inquisition* for lands in any one county even pretended to catalogue all the lands of the individual concerned, though among smaller landowners this appears generally to have been the case, since small properties in other counties or in London were frequently noted in the *inquisition* for the county where the deceased had been resident.[1] It is in dealing with the larger landowners who held extensive property in numerous counties that this fact must be remembered since their estates apparently required a separate *inquisition* for each county.[2]

Apart from this absence of *inquisitions*, either total as for some individuals, or for certain counties in the case of others, those that do survive are not invariably comprehensive as inventories of lands held by the deceased, even for the counties where they were taken. Comparison with the feodaries' surveys sometimes shows the escheator to have been either less thorough or more lenient than the feodary in compiling his complete list of lands,[3] though it must be admitted that where feodaries' surveys and *inquisitions post mortem* overlap, agreement between them as to the number of manors or messuages is overwhelmingly the rule.

The really significant divergence between *inquisitions post mortem* and feodaries' surveys taken for the same persons within a short space of time, is rather in their respective rates of valuation of such property as they do account for. This fact has been pointed out by Mr Bell,[4] who shows, moreover, that these discrepancies became more marked as time went on, so that in the early seventeenth century when Sir Robert Cecil was attempting to wring the utmost possible from wardships and liveries, a feodary's valuation might be as many as twelve times that of the escheator.[5]

It is clear from the evidence of other sources that the valuations of both officials were usually extremely conservative, though the feodary's estimate tended to be slightly more realistic. In attempting to discover the real worth of a group of estates, this would matter very little, could it be proved that the ratio between either the escheator's or the feodary's valuations and the true value of

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Rec. Soc. XXXIII, 7. This last source gives the date of death incorrectly). Similarly, Edward Lewkenor of Tangmere mentioned in his will lands in Essex, Middlesex and Hertfordshire not listed in his *inquistion post mortem.* However, he specified no manors in those counties (Chichester wills 3/26; P.R.O. C. 142/75/54; *Suss. Rec. Soc.* XXXIII, 3). Only rarely do wills refer specifically to manors which are not mentioned in corresponding I.P.M's, and all relevant instances are quoted in Appendix 2.

[1] E.g. the I.P.M. of William Shirley of Wiston, dt. Lewes, 5 October 1551, mentions his manor of Wodensill, Bucks. as well as his lands in Sussex (P.R.O. C. 142/94/76). Also the I.P.M. of Sir Richard Lewkenor, C. J. Chester, dt. Petworth, 20 September 1616, mentions his capital messuage called 'Baggatshey' at Clun, Salop, as well as his lands in Sussex (P.R.O. C. 142/355/45).

[2] E.g. there are I.P.M's for Sir Thomas West, Lord De la Warr, who died 25 September 1554, for the counties of Sussex, Hants. and Wilts. (P.R.O. C. 142/104/73 & 74; 75; 110). But for Thomas West, Lord De la Warr, his great-nephew, there is only one I.P.M. dt. Winchester 12 August 1602, listing his lands in Hants. only (P.R.O. C. 142/273/85).

[3] E.g. the I.P.M. of Thomas Churcher, who died 28 November 1616 at Slinfold, mentions only one capital messuage there; his feodary survey mentions two (P.R.O. C. 142/375/57; Wards 5/43, Pt. 2). Also cp. the I.P.M. and feodary's surveys for the lands in Sussex, Kent, Essex, London & Middx. of Robert Sackville, 2nd Earl of Dorset. The latter mention, in addition to the lands listed in the I.P.M. 5 priories in Sussex (apart from Lewes priory which appears in the I.P.M.), Risingden in Gloucs., and in Sussex, Ringmere Park and the boroughs of Seaford and East Grinstead (P.R.O. C. 142/312/128; Wards 5/43, Pt. 2).

[4] Bell, *op. cit.* p. 56, n. 1.

[5] *Ibid.* Mr Bell compares the I.P.M. and feodary survey values for the lands of John Hawkins of Essex. Both valuations are dated 10 Charles I, the former amounting to £24.8 8., the latter to £300·13·4.

the lands concerned remained fairly constant within a limited period and over a large number of land units. Unfortunately, this is not the case. Comparison of values found in feodaries' surveys of the early seventeenth century with those submitted to the Committee for Compounding, or found in rentals and estate accounts, shows that the feodary's fractional value for the manors of one estate might be anything between a third and a thirtieth of the true value. This is illustrated by comparison of a feodary survey of 1610 with a rental of some twelve years earlier.[1] Similar results emerge from the comparison of a feodary survey of October 1625 with an almost contemporary estate account.[2]

It seems, therefore, that, in the absence of rentals, estate accounts, marriage settlements or even of particulars of estates supplied to the Committee for Compounding for the estates of the vast majority of gentry families, there is little hope of establishing either the real values of those estates at any given time or the trends in those values over a given period. It is a disappointing conclusion, and one which becomes even more discouraging when reinforced by recent criticism of the practice of 'counting manors' as a method of determining the values of estates.[3]

While recognising the validity of the argument that manors vary widely in value, and that one manor is not precisely comparable with another,[4] the economic historian must ask himself what other methods of calculation are open to him. Are his conclusions on the gentry as a whole to be formed from material relating only to a very limited number of families, generally those whose good fortune and continuity has enabled them to preserve their records? [5] Or is he to attempt to deal with a much larger group of families by using such evidence as is available to the best of his ability, remembering the hypothetical nature of his conclusions and checking them in every way possible? The 'counting of manors' is, indeed, a very rough way of estimating estate values. What else remains? There is, after all, no means of checking acreages where manors are named but not described, and estimation by the escheators' valuations, as has been shown, is misleading since they were often wildly inaccurate.

It is true that a landowning family may have been disposing of its manorial property at the same time as it was acquiring non-manorial acres on an extensive scale, or vice versa, so that to take account of manors and capital messuages alone might, in some cases, result in a false impression.[6] But, as a rule, the careful study of wills and of other sources should be an adequate safeguard against this.

In spite, therefore, of the dangers and disadvantages of the method, the manors of the Sussex gentry here under consideration have been 'counted' and the results tabulated for what they are worth. The sources used have been wills, feodaries' surveys and *inquisitions post mortem*. These last do, where they exist, and in spite of possible errors and omissions, give some kind of picture of the scale and extent of landownership among the gentry within a period covering several generations, and they do, again with necessary precautions duly taken, give some clue as to whether individual families were acquiring or parting with land.

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[1] Cp. values given for the same manors in feodary survey of Robert Sackville, 2nd Earl of Dorset (P.R.O. Wards 5/43, pt. 2), and in the Buckhurst Terrier of 1597–8 (*Suss. Rec. Soc.* XIX, *passim*).

[2] Cp. values given for his manors in feodary survey of Sir Thomas Pelham, bart. (P.R.O. Wards 5/43, pt. 1), and the receipts from the same as shown in his estate accounts for the complete year, 1623 (B.M. Add. MS. 5702, fol. 260 *et seq.*).

[3] Cooper, *op. cit.*

[4] H. R. Trevor-Roper, 'The Gentry, 1540–1640', *Econ. Hist. Rev. Supplement*, I, 4.

[5] Cp. M. E. Finch, *The Wealth of Five Northamptonshire Families, 1540–1640* (Northamptonshire Record Society, 1956), p. 1.

[6] Cooper, *op. cit.* p. 388, n. 2.

Thus, it has been found convenient to look for the *inquisition* of the head of each family who was living in 1580, and also those of his predecessor, whether his grandfather, father or elder brother—and of his successor, if any, whether son, grandson or younger brother, provided the latter died not later than 1625.[1] At the best, therefore, a record should in this way be established of the land held by the heads of the family over three generations, stretching backwards and forwards from the year 1580.[2] In fact, for many of the families here considered, only one or two of the three requisite *inquisitions post mortem* have survived; for 15 families, no *inquisitions* whatever are available. It should be emphasised that not all the lands mentioned in the *inquisitions*, such as tofts, crofts, hereditaments, tenements, petty messuages and so on, have been tabulated; and although capital messuages and certain other important items of property have been considered, only manors, in whatever county they were situated, have been noted in Appendix 2.[3]

The detailed investigation of over 110 *inquisitions post mortem*—which is the approximate number of relevant ones that have survived for the 63 families and their significant subsidiary branches—shows that the majority of even the leading country gentry of Sussex in the later sixteenth century, leaving aside the peerage families and their cadet branches, owned lands on a fairly modest scale.[4] It seems that heads of more than half the families under review were no more than four manor men. Of these 33 heads, only four are recorded in their relevant *inquisitions post mortem* as having held as many as four manors: the remaining 29 families—or nearly two-thirds of the 49 for which there is evidence—subdivide into four groups, five of them apparently holding no whole manors at all during this period, eight holding at most one manor, nine holding two, and seven, three. What these manors signified in pounds per annum is a much more difficult problem to solve.

An attempt will now be made to discover as nearly as possible which families were rising and which declining in prosperity through this period.

Feodary surveys throw little light on the problem since so few are available. There are also considerable gaps in the evidence furnished by *inquisitions post mortem*. Yet, if the existence of *inquisitions* for the heads of families in two generations instead of three be considered sufficient to establish a trend in landownership, the necessary evidence exists for as many as 36 families or single branches of families out of the 78.[5]

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[1] The study originally undertaken was of families in the Elizabethan period, and this date was fixed arbitrarily to prevent prolonged research into the seventeenth century.

[2] Where property was alienated for 'demographic' reasons, passing through younger sons and daughters into cadet branches or other families, such alienation is held here to have been a loss to the senior line.

[3] Apart from the peerage, very few families seem to have held such property as parks, hundreds or dissolved religious houses. These do not, therefore, appear in Appendix 2.

[4] Of 49 families out of 63 for which at least one relevant I.P.M. exists, 33 or approx. 67% held less than five manors, 11 or approx. 22% held between five and ten manors, and five or approx. 10% held over ten and up to 20 manors: in these calculations the various branches of any one family are not treated separately, and where the number of manors held varies from branch to branch, the highest figure has been taken. Similarly, where the number of manors held by a family fluctuates from generation to generation, the highest figure has been adopted. Of the 49 families for which sources exist, only 17 are known to have held manors outside Sussex; and, of these, only six outside the adjacent counties of Kent, Surrey and Hants.

[5] Family branches are treated separately in this calculation, hence the figure 78.

Of these 36 families or branches of families, ten show an increase in the number of manors held over the generations under review;[1] 11 show a decrease; four show an increase in one generation followed by a decrease in the next; and for 11 others the number of manors listed remains constant.

Such figures are, perhaps, too partial and too inconclusive to be of much value in themselves, and it might be argued that they throw no light on developments in landownership occurring between the dates of the various inquisitions; but, set beside the verdicts of other sources, they are not worthless. The table in Appendix 2 tabulates the evidence not only of the inquisitions post mortem but also of the selected subsidy rolls as to which families appear to have been rising and which declining in the scale of landownership during this period.

Examination of the first two columns of the table shows that eight families were definitely increasing their landed property during the generations under review since the evidence of *inquisitions post mortem* and of subsidy rolls agrees on this point: they were acquiring manors through the generations studied, and their subsidy assessments were either above the average or rising in relation to it. They were the families of Bishopp, Colbrand, Covert, Culpepper of Wakehurst, Gunter, Lewkenor of West Dean, Pelham of Laughton, and Selwyn. To these might be added the names of Palmer of Parham and Stoughton, since, although they were each at some time assessed at subsidy rates below average, in both cases this was on only one occasion. In any case, that a family should have been assessed at a rate below the average is not in itself proof that it was not acquiring lands.

Similarly, the same two columns of Appendix 2 agree that the families of Apsley of Pulborough, Caryll of Harting, Ernley, Levett, Onley, Shirley of West Grinstead and Thatcher were losing lands during the generations in question, while the families of Morley and Wilgoose could not hold those they gained. In view of the startling evidence of the *inquisitions post mortem* as to the loss of manors by the Gages of Firle and of Bentley, it seems obvious that the upward trend in the assessments of the Gages of Bentley and the consistently high level of those of the Gages of Firle signify something other than a marked increase in the value of their lands. The fact that they were, along with the Shelleys and the Carylls, among the leading Roman Catholic families of the county, may help to explain. In any case, it seems that where the *inquisitions post mortem* give definite evidence of a trend in landownership, they should be trusted rather than the subsidy rolls.

For the remainder of the selected families, one or other of these two columns shows a blank owing to lack of material, or else the evidence is equivocal. However, there are other sources to be considered, for example, evidence of the building of town or country residences during this period, and the figures for sums levied in 1588 or 1589[2] as contributions towards the Armada loan. Taken by themselves, neither of these two sources is of much value, but set alongside the evidence of *inquisitions post mortem* and of subsidy rolls as to trends in landownership, they can be helpful. There is also much incidental material as to the fortunes of these families which is to be found outside the more formal economic sources, for example, the material in the Hatfield MSS, and in the Star Chamber relating to the Ashburnham family.[1] In fact, any relevant information has been taken into account in attempting to establish the trend in the fortune of any particular family.

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[1] To these 10, Lewkenor of West Dean, a branch of the family which was founded by the judge, Sir Richard Lewkenor, should perhaps be added since, though a younger son and not the heir, he left four-and-a-half manors at his death.

[2] See T. C. Noble, *The names of those persons who subscribed towards the defence of this country at the time of the Spanish Armada* (1886), p. xxx of Intro. for a discussion of the date of payment.

The results of such a method of comparison, as employed in Appendix 2, are that while both the *inquisitions post mortem* and the subsidy assessments of eight families agree that the amount and value of their lands increased during the three generations under review, if other evidence is taken into consideration, something like 25 families and family branches seem to have been prospering during the reign of Elizabeth. Again, while the *inquisitions post mortem* and the subsidy rolls suggest that nine families were, on the aggregate, losing lands over this period, if other evidence be adduced, 23 would appear to have been declining economically. The evidence on which these conclusions are based is admittedly fragmentary and difficult to interpret, and in some cases appearances are misleading. For instance, the Shirleys of Wiston were assessed at a consistently high level for two of the subsidies under consideration; they built Wiston House in the 1570's and contributed handsomely to the Armada loan. Yet they met financial disaster during the Elizabethan period. Similarly, the Pelhams of Buckstepe who were assessed at rates well above the average in 1560 and 1572, and perhaps built or altered Hendall House in Buckstepe in Elizabeth's reign, fell seriously into debt in Herbert Pelham's time.

There are many families about whom there is insufficient material available to classify them either way; among them are those whose wealth was chiefly in goods rather than in lands. Moreover, some families must have remained at relatively the same economic level throughout the three generations, keeping pace with the times but no more. Finally, not all the families here described as 'rising' were rising constantly.

Detailed discussion of the factors which contributed to prosperity or decay cannot be attempted in this article; but the evidence examined does illustrate certain familiar themes and also points to some newer ones.

Among the 25 families which appear to have been flourishing in the Elizabethan period, there are several whose heads were ironmasters or managers of forges and furnaces. Perhaps the most notable of these were the Bowyers of Cuckfield, the Eversfields of Denne in Horsham, the Leechs of Fletching and the Mays of Ticehurst and of Burwash. Some prominent and successful landowing families too, like the Coverts of Slaugham and the Pelhams of Laughton, ran forges and furnaces as well as their estates. In one or two cases, the Wealden iron industry seems to have promoted mere newcomers to the county to a remarkable degree of social and political influence there. For instance, although nearly all the leading county office-holders in Elizabethan Sussex were of old-established families, the Eversfields made their name and fortune there astonishingly quickly.[2]

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[1] *H. M. C. Hatfield MSS*, II, 524, 528; P.R.O. St. Ch. 5 Eliz. O.8/36, George Ognell v. Peter Bourne, Thomas Ashburnham etc.

[2] John Eversfield of Worth, a prominent owner of iron-works in Kent, Surrey and Sussex in February 1574, was among the 15 out of 108 Sussex contributors to the Armada loan who subscribed at the highest rate of £100 (*Suss. Arch. Coll.* III, 243). His genealogy has been traced no further than his father, Nicholas Eversfield of Poyle, Surrey, whose will was proved in 1552 (P.C.C. 19 Powell). John Eversfield's elder son, Thomas, bought the Denne property in Horsham for £5,500 in 1604, and probably built the mansion there soon afterwards (D.G.C. Elwes and C. J. Robinson, *A History of the Castles, Mansions and Manors of Western Sussex* [1879], p. 120). He became sheriff of Sussex in December 1599, was knighted in 1603 and, by the early seventeenth century, his family were well-established in the county.

Not all successful iron founders owned their forges: some, like Richard Leech of Fletching, merely managed them for others, in his case for Lord Buckhurst whose generosity he acknowledged in his will. According to a contemporary, Richard Leech was 'a Sussex gentleman of good fortune, having large estates in Kent, Hampshire, Surrey and Sussex, and whose town house was in Coleman Street'.[1]

There were other prosperous families which had evidently made their fortunes in trade before settling down as country gentry: for instance, the Gartons of Woollavington were a family with close City connections and one which had made its money in 'ironmongery'.[2] A similar example is the Palmer family of Parham, a younger branch of the old Sussex family of the Palmers of Angmering. The Parham property had been held of the Crown by Westminster Abbey since before the Conquest and formed part of the endowments of the Abbey infirmary. In 1540, after the Dissolution, the manor was sold for £1,225.6s.5d. to Robert Palmer, citizen and mercer of London.[3] It was Robert's son, Thomas, who built the house which still stands today. Again, the Bowyers of North Mundham established themselves there in the first place on the proceeds of the 'grocery' business, though Thomas Bowyer, Esquire, son of Thomas Bowyer who had been a citizen and grocer of London and was later of North Mundham, became a lawyer, since his father considered his own line of business too hazardous. The grandson became a baronet and rebuilt the family seat of Leythorne.[4]

The law was itself another notable source of wealth. Apart from Thomas Bowyer of North Mundham, there were several successful Sussex lawyers in the Elizabethan period, such as Sir John Jefferay of Chiddingly who became a Justice of Queen's Bench and eventually Chief Baron of the Exchequer; Sir Richard Lewkenor of West Dean who became Chief Justice of Chester; Adrian Stoughton of West Stoke, Recorder of Chichester, and perhaps Sir Edward Culpepper who built himself Wakehurst Place. All of these seem to have thrived economically.[5]

In the case of some families it is difficult to discover any significant source of income other than agriculture. This seems to have been the chief support of the Coverts, the Gorings of Burton, the Palmers of Angmering and the Pelhams of Laughton; [6] of these, the Gorings and the Palmers, like the more famous Sussex example, the Sackvilles, had profited greatly by the Dissolution of the Monasteries.[7]

Occasionally, prosperity seems to have been owed very largely to a fortunate marriage,[8] or to the influence of a powerful patron,[9] but, surprisingly, not one example has been found, outside the peerage, of a family whose economic success at this period was clearly due to the tenure of office under the Crown.[1]

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[1] *Suss. Arch. Coll.* XI, 7–8.

[2] Elwes, *op. cit.* p. 272; A. B. Beaven, *The Aldermen of the City of London* (1908, 1913), I, 182, II, 43.

[3] Elwes, *op. cit.* p. 164; *Suss. Arch. Coll.* XXV, 18.

[4] *Suss. Arch. Coll.* LXIV, 106; XLII, 19; LXIV, 105.

[5] On Sir John Jefferay, see E. Foss, *Judges of England* (1857), V, 513–4; on Sir Richard Lewkenor, see W. R. Williams, *History of the Great Sessions in Wales, 1542–1830, together with the lives of the Welsh judges* (Brecknock, 1899), p. 33; for Adrian Stoughton, see *Inner Temple Admissions, 1547–1660*, p. 89; for Sir Edward Culpepper, see *Suss. Arch Coll.* XLVIII, 89–90.

[6] The Coverts and the Pelhams of Laughton had also some interest in the iron industry (B. M. Stowe MS. 570, fol. 104; E. Straker, *Wealden Iron* [1931], p. 436).

[7] E.g. Elwes, *op. cit.* pp. 23, 56; *ibid.* pp. 10–11; *Suss. Arch. Coll.* XVI, 155.n; LIII, 209.

[8] This seems to have been true in this period of the families of Scott, Selwyn and Sheppard.

[9] Perhaps this was true of Thomas Bishopp who bought Parham. He had been a ward of Sir Richard Sackville (P.R.O. Wards 9/138, fols. 159–161v).

It is in examining the decaying families that the question of office-holding becomes relevant, for the only two heads of the selected families who were living in 1580 and were at some time Crown office-holders were Sir Thomas Shirley of Wiston and George Goring of Ovingdean and Lewes, both of whom were financially ruined. Sir Thomas Shirley's exploits while Treasurer at War to the Earl of Leicester's expedition to the Netherlands are well known. He went bankrupt in March 1597, and was charged with owing £120,000. His imprisonment in the Fleet in 1604 while M.P. for Steyning was ended only through the historic intervention of the House of Commons on a question of privilege, and, despite the sale of much ancient family property, he died leaving a burden of debt from which his heirs did not recover.[2]

George Goring, Receiver-General of the Court of Wards from July 1584, who mismanaged the Crown's money passing through his hands, defaulted and died in debt to the Crown in March 1594. In July 1595, it was estimated that he owed the Crown £19,777.2s.3½d. His eldest son and heir, also George, who tried unsuccessfully to purchase his father's office from Sir Robert Cecil, had his property valued by the sheriff and most of the revenue appropriated to the Queen's use throughout his lifetime, though he himself retained a small allowance and was provided for as a Gentleman Pensioner.[3]

Sometimes 'demographic' factors were responsible for decay. For instance, John Levett of Hollington who died in December 1554, left 20 manors according to his *inquisition post mortem*, while his only son, Lawrence, who was a minor at his father's death, died unmarried, leaving only six manors to his sister, Mary. She was married to a Thomas Eversfield to whom she brought the Hollington property. The other 14 manors were evidently either alienated by Lawrence Levett or had perhaps been settled on his mother, Eva, a Kentish heiress.[4] The Onley family, too, of Pulborough, suffered a severe blow when, in October 1590, Owen Onley died leaving an only son, William, who was then a minor, and later, in 1610, found to be a lunatic. The family property therefore passed ultimately to William's sister, Elizabeth, then married. [5]

Some families may have lost much through litigation, [6] others through the financial misfortunes of their relations.[7] But perhaps the most frequent and remarkable cause of trouble was religious nonconformity.

The connection between recusancy and economic decline has not yet been satisfactorily worked out for a large number of families,[8] but it is clear that there was sometimes a significant link between them. Among the Sussex gentry who appear to have been failing economically throughout the Elizabethan period were a considerable number of families, either recusant or sympathetic to Roman Catholicism; for instance, the Apsleys of Pulborough, the Ashburnhams of Ashburnham, the Carylls of Harting, the Darrells of Scotney, the Dawtreys of Petworth, the Gages both of Firle and of Bentley, the

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[1] The Sackvilles are classified as of the peerage.

[2] Dietz, *op. cit.* pp. 242 *et seq.*

[3] On George Goring, the elder, see P.R.O. MS. Calendar of Pat. Rolls, 26 Eliz. fol. 5; *Cal. S. P. Dom. 1595–7*, pp. 69–70. On his son and heir's difficulties, see *H. M. C. Hatfield MSS*, IV, 501, 515 *et passim*, V and VI *passim*. See also *Cal. S. P. Dom. Addenda, 1580–1625*, p. 336.

[4] P.R.O. C. 142/106/66 and C. 142/108/105; C. 142/211/192.

[5] P.R.O. C. 142/226/121; C. 142/238/11; C. 142/324/147; *Suss. Rec. Soc.* XIV, 171–2.

[6] E.g. perhaps the families of Wilgoose and Michell of Cuckfield.

[7] E.g. perhaps the Morleys of Glynde and the Shirleys of West Grinstead, though the latter also had a failure of male heirs.

[8] But see Finch, *op. cit.* ch. iv, pp. 76–8, *et passim.*

Pelhams of Buckstepe and Michelham,[1] the Shelleys of Michelgrove and the Thatchers of Westman. Many of these families were interrelated so that in any case the misfortunes of one would probably have affected some of the others.

Just how far the economic deterioration of these families was due to recusancy fines and other impositions[2] has not been studied as yet. But the close correlation between evidence of economic hardship and of Roman Catholic sympathies is striking.

Similarly, it is interesting that among those families which seem from the data collected to have been progressing economically at this period, few seem to have been suspect on religious grounds.[3]

It is evident that religion as well as the demographic factor had an important bearing on the fortunes of many of these gentry families of Elizabethan Sussex.

London

APPENDIX 1

Relationship between subsidy assessment for individual families and the average assessments in each of the four subsidy years, 1546, 1560, 1572 and 1626[4]

Note:

(i) The individual assessments which are noted are those of heads of families, also of their wives or sons if separately assessed, or of widows of sometime heads of families. Where identity is at all uncertain, the assessment has not been utilised in this table.

(ii) The average rate of assessment for this group of families for each of the four subsidy years is as follows, (to the nearest pound):

1546	£60
1560	£48
1572	£33
1626	£14

(iii) The number of assessments on which the classification is based is indicated in brackets beside each name.

(iv) Some of the families which are listed as above or below the average figure for any given year were sometimes assessed at a figure very close to it.

	A	*B*
No assessments	*Assessed at rates consistently above average*	*Assessed at rates consistently below average*
Agmondesham	Ashburnham of Ashburnham (2)	Apsley of Pulborough (2)
Barkeley	Blount (1)	Ashburnham of Broomham (3)[5]
Bowyer of Cuckfield	Bowyer of North Mundham (1)	Barentyne (2)
Casie	Caryll of Warnham (1)	Bartellot (3)
Drew	Covert (4)	Caryll of Harting (1)
Eversfield	Culpepper of Wakehurst (2)	Churcher (1)

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[1] The purchase of Michelham in 1587 by Herbert Pelham seems to have been a mistake in any case, but he was also in trouble in 1609 for harbouring recusants and for absenteeism from church (*Suss. Arch. Coll.* VI, 160–1; XLIX, 56).

[2] E.g. the demand of 17 August 1584 that certain J.P's should furnish horses for service in Ireland as proof of loyalty to the Crown (*Suss. Arch. Coll.* XII, 200–202; B. M. Harl. MS. 703, fol. 20.).

[3] Cp. the indebted Thomas Shirley of West Grinstead who, a strong puritan, died in debt in 1606 yet willed a bequest to help deprived clergy (P.C.C. 3 & 39 Huddlestone).

[4] P.R.O. E. 179/190/225; E. 179/190/264–9; E. 179/190/283; E. 179/191/377a.

[5] But rising in relation to the average.

Fortescue
Leech
Nevell
Pelham of Hastings
Stanley
Threele

Gage of Firle (3)
Gage of Bentley (1)
Goring of Burton (3)
Palmer of Angmering (2)
Pelham of Laughton (3)
Pelham of Buckstepe (2)
Selwyn (2)
Shelley of Michelgrove (4)
Shirley of Wiston (2)
Stannye (1)

Colbrand (2) [1]
Cowper (1)
Culpepper of Wigsell (1)
Fenner (1)
Garton (2) [1]
Goring of Ovingdean (3)
Gunter (2) [1]
Hussey (4)
Jefferay (2) [1]
Levett (2)
Lewkenor of Selsey (2)
Lewkenor of Trotton (3)
Marvin (2)
May of Burwash (2) [1]
Michell (2)
Onley (2)
Palmer of Parham (1)
Poole (1)
Porter (2)
Scott (1)
Sharpe (4)
Shelley of Patcham (1) [2]
Shirley of West Grinstead (3)
Spelman (2)
Shurley of Lewes (1)
Stapley (4)
Stoughton (1)
Thatcher (1)
Wilgoose (3)

C

Assessed at rates rising from below to above average

Apsley of Thakeham (3)
Bellingham (4)
Bishopp (3)
Ford (4)
Lewkenor of West Dean (2)
Lunsford (4)
May of Ticehurst (2)
Sheppard (3)
Shurley of Isfield (3)

(*But* Bellingham, Ford and Lunsford slipped below average again, though the assessments for Bellingham and Ford recovered a second time).

D

Assessed at rates falling from above to below average

Darrell (3)
Dawtrey (3)
Ernley (3)
Morley (4)
Parker (4)
Roberts (2)

(*But* Morley and Parker recovered slightly, though the assessment for Morley subsequently declined again.)

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[1] But rising in relation to the average.

[2] But most assessments for this family were on goods.

APPENDIX 2

Economic trends among the Sussex gentry.

(The evidence of *inquisitions post mortem*, of the subsidy assessments of 1546, 1560, 1572 and 1626, of building activities and of contributions to the Armada loan. Any other relevant evidence available for the histories of individual families has also been considered in classifying them as follows).

Note:

(i) The first column shows increases and losses in numbers of manors held by heads of families or family branches in whatever county during the generations studied for which there is sufficient evidence (i.e. for at least two generations), according to I.P.M's. The dashes divide the generations.

(ii) The second column summarises the evidence of Appendix 1 relating to subsidy assessments. The letters A to D refer to the categories in that table.

(iii) In the third column, families which undertook the building of houses in Sussex during this period are marked 'blt.'; those which altered them extensively are marked 'alt.'; and those who the architectural evidence of Grimm's eighteenth-century etchings of country houses in Sussex (Burrell MSS. B.M. Add. MSS. 5670–5677) suggests may have built during this period, are marked 'g'.

(iv) The evidence in column four is taken from *Suss. Arch. Coll.* I, 32 *et seq.* and shows the scale of contributions by members of these families to the Armada loan of 1588. Where there is any doubt as to identity, the entry is queried. The rates of contribution shown in *Suss. Arch. Coll.* I, 32 *et seq.* rise thus: £25, £30, £40, £50, £60, £100.

Families and family branches which appear to have been prospering economically during the reign of Elizabeth. (Those which according to I.P.M.'s were increasing the number of manors they held, and which were assessed at rates above average or rising in relation to it in the subsidy years studied, are underlined).

	I.P.M's	*Subsidies*	*Building*	*Armada loan*
Ashburnham of Broomham	(1–1)	B	blt.	
Bellingham		C	blt.	£25
Bishopp	(4–10)	C	(bought Parham)	
Bowyer of Cuckfield	(0–1¼–¼ & ¼)		blt.	
Bowyer of North Mundham	(2–2)	A	blt.	£30
Colbrand	(0–2)	B		
Covert	(7–11 & ⅔ & ¼)	A	blt.	£100
Culpepper of Wakehurst	(3–6)	A	blt.	£100
Eversfield [1]	(1–4¼–4¼)		blt.	£100
Garton	(3–3)	B	blt.	
Goring of Burton	(5–9¼–8¼)	A	blt.	£100
Gunter	(1–3–3)	B	blt.	
Jefferay		B	blt.	
Leech				£40
Lewkenor of West Dean [2]	(4½)	C		
May of Pashley in Ticehurst	(2–2)	C	g	
May of Burwash	(2–2)	B		£50
Palmer of Angmering		A	blt.	
Palmer of Parham	(6–9–9)	B	alt. (sold Parham)	
Pelham of Laughton [3]	(5–6–2–12)	A	blt.	£100

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[1] According to his will (P.C.C. 19 Powell), Nicholas Eversfield, of the first generation, had also one manor in Surrey, not mentioned in his I.P.M's (P.R.O. C. 142/97/84; Wards 7/6/18; E. 150/1098/2.

[2] There is only one I.P.M. for the Lewkenors of West Dean but they should, perhaps, be noted as a 'rising' family since Sir Richard, founder of this branch, who died seised of 4½ manors, was only a younger son.

[3] The first figure for manors held would be six if Bishopstone, called a farm in Sir Nicholas Pelham's will (P.C.C. 9 Street), were counted a manor as in the I.P.M's of his successors (P.R.O. C. 142/195/119: C. 142/417/41).

	I.P.M's	*Subsidies*	*Building*	*Armada loan*
Scott [1]	(4½–1½)	B		
Selwyn	(1–2–2)	A	g	£50
Sheppard		C		£40
Shurley of Isfield	(3–3)	C	blt.	
Stoughton	(1–2)	B		
(Total: 25)				

Families and family branches which appear either not to have been prospering or to have been declining economically during the reign of Elizabeth. (Those which according to I.P.M.'s were, on the whole, losing manors during the generations studied, and which were assessed at rates below average or sinking in relation to it in the subsidy years reviewed, are underlined).

	I.P.M's	*Subsidies*	*Building*	*Armada loan*
Apsley of Pulborough	(2–2–⅔)	B	alt.	
Ashburnham of Ashburnham		A		
Caryll of Harting [2]	(11–9)	B		£100
Darrell		D	blt.	
Dawtrey [3]	(0–0)	D	blt.	
Ernley	(2–0)	D		£30
Gage of Firle	(16–12)	A	g	
Gage of Bentley	(7–4)	A		
Goring of Ovingdean		B	blt.	£100
Levett	(20–6)	B	g	£40
Lunsford		C		
Michell		B		
Morley [4]	(5–5–4)	D	alt.	£100
Onley	(1–½)	B		
Pelham of Buckstepe		A	blt.	
Porter		B	blt.	
Roberts		D	g	
Sharpe		B		
Shelley of Michelgrove		A		£40
Shirley of Wiston		A	blt.	£100
Shirley of West Grinstead	(2–1)	B		
Thatcher	(4–3)	B	blt.	
Wilgoose	(1–5–2)	B		
(Total: 23)				

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[1] According to the version of William Scott's I.P.M. followed here (P.R.O. C. 142/225/54), and used for the second figure for manors held, he had, at his death, only the reversion of the manors of Mote, River and Flote in Sussex and of St. Cleres, Essex, though he was seised of ½ the manor of Ham, and the manor of Meigham, Kent. Another version (*Suss. Rec. Soc.* XXXIII, 63), says he was in fact seised of Mote, River and Flote manors, but does not mention St. Cleres.

[2] According to his will (P. C. C. 55 Wingfield), Sir Edward Caryll had, in addition to the 11 manors here shown, three Sussex manors not mentioned in his I.P.M. (P.R.O. Wards 7/44/168).

[3] There was a disputed succession in this family and the I.P.M. dt. 1575 of one, Richard Dawtrey, an idiot who had died in 1554 and whose lands had been appropriated by his half brother, William, said that Richard had died seised of three manors (*Suss. Rec. Soc.* XIV, 70).

[4] In Thomas Morley's I.P.M. (P.R.O. C. 142/124/160), quoted for the first figure of manors held, Great and Little Bainden appear as two manors, though they count as one in the I.P.M's of his heirs. Also Hawskden is called a manor in his I.P.M. but not in theirs (P.R.O. C.142/253/98; C. 142/325/184). The first figure for manors held should therefore be three.

Families and family branches for which the evidence is inconclusive.

	I.P.M's	*Subsidies*	*Building*	*Armada loan*
Agmondesham				
Apsley of Thakeham		C	g	
Barentyne		B		
Barkeley				
Bartellot		B	alt.	£25
Blount		A		
Caryll of Warnham		A		£100
Casie				
Churcher		B		
Cowper	(0–0)			£25?
Culpepper of Wigsell		B	g	
Drew				
Fenner		B		
Ford		C		
Fortescue	(10–3&½&½&⅓–3)			
Hussey	(1–1)	B		
Lewkenor of Selsey		B		
Lewkenor of Trotton		B		
Marvin		B	alt.	
Nevell				
Parker	(7–7)	D		
Pelham of Hastings			blt.	
Poole		B		
Shelley of Patcham		B	blt. (Lewes) g (Patcham)	
Shurley of Lewes				£30
Spelman				
Stanley				
Stannye	(0–0)	A		
Stapley		B		
Threele				
(Total: 30)				

THE POLITICAL BACKGROUND TO ENGLISH MERCANTILISM, 1695–1700

By H. F. KEARNEY

The Irish Woollen Act of 1699 and the linen measures which accompanied it are commonly looked upon as a classic piece of mercantilist policy. The episode is regarded as a carefully contrived piece of official policy by which the exportation of Irish woollen goods was prohibited while in compensation the Irish linen industry was to be allowed and encouraged to expand. As Sir George Clark put it:

> If the English had wished to impoverish Ireland they would not have lacked an excuse for restricting the Irish linen trade as they had restricted the Irish woollen trade. So far from doing all this they promised to encourage it by all possible means, as an equivalent for the lost opportunities for the woollen manufacture. They kept their promise.[1]

The historian of the Irish linen industry, Conrad Gill, also refers to a 'bargain' between the English and Irish governments as an essential part of the story.[2] At the same time, however, it is generally recognised that the English woollen industry also played an important role in pressing for restrictive measures against Ireland, but the political background to the whole episode has never been fully investigated. This essay is an attempt to fill in the relevant political, constitutional and religious details to a story which has hitherto been treated in purely economic terms. It may also be said to raise the general question as to how far economic history can be treated in isolation from the rest of social history. This may seem a commonplace, but as C. H. Wilson has recently pointed out 'the nature of policy has hardly anywhere been related sufficiently to the resources, geography, politics and social structure of the different states'.[3] His advice is not least relevant for the last decade of the seventeenth century, most political of decades, in which nothing, not even the Bank of England, was immune from politics.

II

For practical purposes, the attack upon the woollen industry of Ireland may be said to have been launched by the Bristol economist, John Cary, in his widely read pamphlet, *Essay on Trade*, published in 1695.[4] In December of that year, when the agitation for a merchants' council of trade was being pressed, the two Bristol members of parliament were urged by Cary and others to raise the matter in debate [5] and in 1696 Cary himself was sent to London to act as the special representative of the Bristol merchants.[6] But though Cary was acutely conscious of Irish competition, he did not make Ireland the only scapegoat for the commercial and financial crisis affecting the south-western counties. Equally objectionable in his eyes was the East India Company, which imported calicoes and silks into England to the detriment of English woollens.[1] The fact that London enjoyed a monopoly of this lucrative trade at the expense of the outposts like Bristol, was another source of grievance.[2] Cary's theoretical objections to the Company however, did not prevent him from becoming a trustee in 1698 when its monopoly was broken.[3]

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[1] G. N. Clark, *The Later Stuarts* (1934), p. 305.

[2] C. Gill, *Rise of the Irish linen industry* (1925), p. 17.

[3] C. Wilson, 'Mercantilism: some vicissitudes of an idea', *Economic History Review*, 2nd ser. X (1958), 187.

[4] Criticisms however had already been made in 1680 by the author of *Britannia Languens*. See *Early Tracts on Commerce*, ed. J. R. McCulloch (Cambridge, 1952), p. 402.

[5] P. McGrath, *Merchants and merchandise in seventeenth century Bristol* (Bristol Record Soc. 1955), pp. 165–7.

[6] *Ibid.* p. 164. n.

Without political backing, Cary's views stood little chance of being translated into statute since neither of the two trading interests that he had attacked was politically defenceless. The East India Company was not merely a commercial monopoly with great financial reserves, it was also a powerful political lobby, which could, and had, mobilised opinion in both houses of parliament.[4] Similarly, though there was no Irish representation in the English parliament, the Irish parliament itself, in which the woollen interest was strongly represented, was a continual source of anxiety to William III and his ministers. Despite the fact that the Irish House of Commons at this date was drawn exclusively from the ranks of the English colonists, it had proved exceedingly intractable, claiming the 'sole right' to initiate financial legislation and refusing to ratify the Treaty of Limerick, part of which only was passed in 1697, six years after it had been signed.[5]

Neither William III nor the Whig Junto were anxious to increase their difficulties in the Irish parliament, by sponsoring restrictive measures against the Irish woollen trade and, any questions involving the East India Company or Ireland were bound to be treated by them as much on grounds of political expediency as on economic merits. It was not surprising that the first general report of the Board of Trade, made on 25 November 1696,[6] turned a blind eye towards these two difficult problems, despite the fact that John Pollexfen, a severe critic of the East India Company, was a member.

Though the obstacles in the way of Cary's policy were great, the English woollen industry was by no means ill-equipped for bringing political pressure to bear on the government. However, existing constitutional arrangements, in particular the number of boroughs, greatly favoured the south-west, as compared with East Anglia, the other main centre of the cloth industry. Compared with Cornwall, Devon, Dorset and Wiltshire, the Eastern counties of Norfolk, Suffolk, Essex and Lincoln were all seriously under-represented in parliament.[7] Divided geographically, these two main units of the English cloth industry were also divided by economic interest. To the weaving interests of the south west, cheap Irish wool was a necessary raw material, and anything which tended to interfere with its supply was felt as an immediate danger, quite apart from the direct competition of Irish woollens exported abroad. To the weavers of East Anglia and the silk weavers of London and Canterbury however, the threat from the silks and calicoes of the East India Company was more immediate.

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[1] This section of the pamphlet was published separately in 1696 under the title, 'A discourse concerning the East India Trade, shewing it to be unprofitable to the Kingdom of England'. The Company was subjected to parliamentary criticism early in 1696. D. Ogg, *England in the reigns of James II and William III* (Oxford, 1955), p. 309.

[2] It was 'against common justice and the birthright of Englishmen to exclude any of them from so great a part of the trade of the Nation and that Bristol, Exeter, Plymouth and Hull should not trade to the East Indies as well as London'. Quoted in S. A. Khan, *The East India Trade in the Seventeenth Century* (Oxford, 1923), p. 208.

[3] *Cal. S. P. Dom. 1698*, p. 370.

[4] R. Walcott, 'The East India interest in the General Election of 1700–1701', *English Historical Review*, LXXI (1956), 223–39.

[5] William was forced to give way on the notorious question of the 'omitted clause'. Cf. J. G. Simms *The Williamite Confiscation in Ireland* (1956), pp. 61–3.

[6] *H. of C. Journals*, XI (1742), 593 ff.

[7] This fact is well brought out pictorially in A. Browning, *English Historical Documents, 1660–1714* (1953), p. 221.

This division of interest in the English cloth industry explains the fact that when the attacks upon the East India Company and the Irish woollen trade were launched late in 1696 and early in 1697, they came from different quarters. The pressure against the East India Company came largely from London and East Anglia, and during the course of December, petitions against the Company were presented from Norfolk,[1] Peterborough,[2] London, Whitechapel[3] and Kettering.[4] By contrast, mostly during March 1696/7, complaints against the Irish woollen trade came from Bristol,[5] Crediton,[6] Bideford,[7] Barnstaple,[8] Great Torrington,[9] Exeter,[10] Minehead[11] and Taunton.[12]

East Anglia was first in the field on 30 November 1696, when Sir Henry Hobart (Norfolk) and Thomas Blofeld (Norwich) introduced a bill to restrain the importation of East Indian calicoes and silks.[13] This manoeuvre met with surprising success, despite the neutral silence observed by the Board of Trade, and passed its third reading in the Commons on 6 February 1696/7.[14] Hobart's fellow teller was Charles Paulet, a member of the Whig Junto, which may indicate that the government at this stage was benevolently disposed. But the bill had still to face the Lords and there, success was improbable. One member of the Commons remarked that 'it had cost the weavers £500 to endeavour to prohibit the East India silks; and that they had no more to spend; but that he did not doubt but the Linen-drapers would find money enough to manage the Weavers and hinder the passing of the bill'. This judgment proved correct. The East India Company was too tough a nut to be cracked without complete government support and in July 1698 even Montague was surprised at the resistance which he met with over the Two Millions Bill. He wrote to Shrewsbury, 'I was not ignorant of what I undertook, nor insensible of the Opposition I should meet with from such a set of men as the East India Company; but really the dispute was more obstinate than I did expect'.[15] It was surprising indeed that Hobart's bill should have got as far as it did between November 1696 and February 1696/7.

In contrast the attack upon the Irish woollen trade was not launched until 27 March 1697 when Sir Joseph Tily (Exeter) and Sir William Ashurst (London) obtained leave to bring in a bill to prevent the exportation of Irish woollen manufactures into foreign parts. Tily's part is self-explanatory in the light of his Devon background, but Ashurst's role is obscure. Perhaps the explanation lies in his being a director of the East India Company, and hence only too eager to use the agitation against Irish woollens to distract attention from Indian calicoes. There was little time however for Ashurst's bill to get very far and it had been read only once on 5 April 1697, before Parliament was prorogued on April 16. It did have the result however of drawing the government's attention to the matter and to possible political complications. The Privy Council therefore ordered the Board of Trade on April 20 to take into consideration the trade of England and Ireland, and to suggest how trading relations might be improved to the advantage of both nations.[1]

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[1] *H. of C. Journals*, XI (1742), 623. These petitions were not necessarily 'spontaneous' and their inspiration may well have come from Westminster.

[2] *Ibid.* 633.

[3] *Ibid. op. cit.*

[4] *Ibid.* 635.

[5] *Ibid.* 621.

[6] *Ibid.* 747.

[7] *Ibid.* 621.

[8] *Ibid.* 754.

[9] *Ibid.* 759.

[10] *Ibid.* 751.

[11] *Ibid.* 750.

[12] *Ibid.* 751.

[13] *Ibid.* 601.

[14] *Ibid.* 695.

[15] *Correspondence of Charles Talbot, duke of Shrewsbury*, ed. W. Coxe (1821), p. 543.

It is clear from these preliminary skirmishings that the initiative in the formation of economic policy lay not with the Board of Trade or even the government but with the House of Commons. Once parliament had been prorogued however, the government was free to consider its future policy towards Ireland and the East India Company. On 23 December 1697, the Board of Trade (John Locke was a notable absentee) gave its opinion on both matters as part of a general survey of English trade.[2] Its view on the East India trade was that it might be requisite to discourage the wearing of Indian linens, unless the Company showed that re-exports brought in as much bullion as was carried out.[3] As for Ireland, the Board noted that English woollen manufacture was affected by the export of Irish woollen goods and suggested as a remedy that H. M. subjects in Ireland should be diverted to linen.[4]

The fate of these two proposals was to be very different, but in each case, political rather than economic considerations played the major part in deciding the course of events.

3

Four persons were responsible for the working out of government policy towards Ireland at this date. In the English Privy Council itself, Charles Talbot, earl of Shrewsbury, confidant of William III, was secretary of state; in Ireland, his opposite numbers were the lords justices, newly appointed after lord deputy Capel's death in 1696. These were Charles Paulet, now marquis of Winchester and the Huguenot, Henry de Ruvigny, earl of Galway. To them was added as lord chancellor, early in 1697, John Methuen, member of the Board of Trade and member of parliament for the clothing town of Devizes. Methuen owed his position on the Board of Trade [5] and as Irish lord chancellor [6] to Shrewsbury's influence.

Their policy had been laid down for them in the royal instructions to the lords justices, dated 23 April 1697,[7] which called for a 'bill to encourage the linen industry in Ireland'.[8] Clearly at this date the English government had no plans for direct action against the Irish woollen industry. What Shrewsbury envisaged was a linen bill drawn up by the Irish parliament as a sop to English parliamentary criticism to show that something was being done to divert Irish attention away from wool. In August, he wrote to Galway:

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[1] P.R.O. Co/391/10. fol. 81.

[2] B.M. Add. MSS. 2902 (Hill MSS.) fols. 171–80. Abraham Hill was a member of the Board and several official documents relating to the Board are to be found among his private papers.

[3] *Ibid.* fol. 173. v.

[4] *Ibid.* fol. 177. v.

[5] *Hist. MSS. Com. MSS. of the Duke of Portland*, iii. 576.

[6] Shrewsbury to Somers, 24 December 1696, *Correspondence of Charles Talbot, duke of Shrewsbury*, ed. W. Coxe, p. 451.

[7] *Cal. S. P. Dom. 1697*, p. 134; P.R.O. CO /391/10, fol. 81.

[8] There was nothing new in this. Capel had been given similar instructions in 1695. *Cal. S.P. Dom. 1694–5*, p. 457; cf. also *ibid. 1691–2*, p. 174.

> I wish that some bill that would effectually encourage the linen manufacture were in such forwardness that it might be perfected this session. It would be of great advantage to England as well as Ireland and unless something be now done to show the Parliament here that the Irish will turn their industry to what may divert them from the woollen trade, that is, what the English are so jealous of, the next session the Irish will certainly receive a mortification on the subject, what was done at the end of the last being intended as a fair warning to them.[1]

The result of Shrewsbury's pressure was the drawing up of a linen bill, under the guidance of an Ulster landowner, James Hamilton of Tullymore. After passing through the Irish parliament during September, Hamilton's bill was forwarded, in accordance with the terms of Poynings' Law, to the English privy council [2] and from there it was sent on to the Board of Trade for further scrutiny.[3] In Ireland, it had been a stormy parliamentary session, which saw the difficult ratification of part of the Treaty of Limerick, and it is perhaps a measure of the harmlessness of Hamilton's bill that it got through without much trouble. The charge was later to be made in November that whoever drew up the bill had meant it to be useless, though Galway denied this in a letter to Shrewsbury.[4]

Meanwhile, in accordance with the Privy Council instruction of April 22,[5] the Board of Trade had been proceeding with its own plans for Irish woollens and linens, but four months elapsed before a final draft was approved. It was not until August 17 that a small group met, consisting of John Pollexfen, Abraham Hill and John Locke, to discuss the trade of England and Ireland.[6] Their discussions went on daily, presumably around the question whether Ashurst's bill to *prevent* the export of Irish woollens should be adopted or some other scheme merely to *discourage* the Irish woollen manufacture. On August 31 Locke's moderate scheme for discouragement was adopted.[7]

Locke had already, in September 1696, made enquiries concerning Irish linen, from his Dublin friend William Molyneux,[8] but this had been some time before Ashurst's attack upon the Irish woollen trade had been made in the Commons. In fact Locke's interest in Irish linen in 1696 seems to have formed part of the discussions in the Board of Trade to free wartime England from excessive dependence upon Baltic linen imports.[9] His scheme of August 1697 was a response to a different set of circumstances and though it did aim at discouraging Irish woollen manufacture, it was essentially moderate compared with Ashurst's bill. He explicitly disavowed the suppression of Irish woollen exports on the ground that smuggling would be impossible to control.[10]

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[1] *Hist. MSS. Com. MSS. of the Duke of Buccleuch*, ii. 543.

[2] *Ibid.* p. 564.

[3] P.R.O. CO /391/10, fol. 331.

[4] *Hist. MSS. Com. MSS. of the Duke of Buccleuch*, ii. 582.

[5] P.R.O. CO /391/10, fol. 262.

[6] *Ibid.* fol. 201.

[7] P.R.O. CO /319/10. fol. 226.

[8] Locke to Molyneux, 12 September 1696. *Locke's Works* (1812), ix. 387.

[9] P.R.O. CO /391/9. fols. 16, 20, 37, 51.

[10] B.M. Harleian MSS. 1324, fols. 22–31.

Instead he suggested the imposition of duties upon oil, teasels and the various utensils used in woollen manufacture, as well as a quasi-excise duty upon woollen stuffs while still on the loom. These duties were to be put into force gradually, not by parliamentary statute, but by royal proclamation. In compensation for all this, linen manufacture was to be encouraged by allowing hempseed and linen to be imported free of duty; land on which flax was grown was to be free of tithe, duties upon imported calico were to be increased, and spinning schools were to be set up to bring the use of the double wheel into fashion. It should be noted that Locke's scheme avoided the constitutional issue of a clash between the English and Irish parliaments; it was also intended to discourage Irish woollens by executive action (proclamation) and to encourage Irish linens by legislative action in Ireland (Irish parliamentary statute). P. Laslett's comment on this scheme is that it 'recommended the deliberate destruction of woollen manufacture there... This is not easy to reconcile with Locke's political principles'.[1] Seen against the immediate background, however, Locke's plan was essentially more moderate than any other. Discouragement over a period of time and immediate suppression by the English parliament were two distinct methods, and the Irish parliament itself in 1698 came round to adopting a plan similar to Locke's.

In October 1697, then, Hamilton's linen bill and Locke's 'Representation' were both under consideration as a basis for future policy. On October 30 and each succeeding day until November 11, Hamilton's bill was discussed, line by line.[2] There were considerable differences of opinion within the Board of Trade, in the course of which it emerged that Locke was in a minority of one.[3] Sir Francis Brewster, a member of the Irish parliament, was summoned before the Board to give his opinion of Hamilton's bill, which he criticised on the grounds of being too coercive and impracticable. Brewster considered that 'people will not be brought to apply themselves to any manufacture by Terror but by rewards and profit'. 'He thought that it was very necessary that a Bill should be sent over such as their Lordships should think proper. That though it were rejected yet it would do much good. Because they are afraid of some severe Law from England against their Woollen Manufacture and rather than incur that danger, they would apply their thoughts some way or other to promote this of Linnen'.[4] The Board of Trade then drew up an amended scheme, 'but Mr Locke excused himself from signing the Representation'. Clearly this was one occasion on which Locke did not carry the Board with him.

Though there were disagreements within the Board, there had been no support for Ashurst's bill. The general opinion of the Board of Trade seemed to be that encouraging the Irish linen trade might well be enough. Such moderate plans were possible while the English parliament was not sitting, but on December 3, it met and within a fortnight, Ashurst's bill to suppress Irish woollen manufactures had been re-introduced, this time under more powerful opposition auspices.

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On 14 December 1697 the attack upon Irish woollen manufactures was taken up again by one of the most prominent members of the Tory opposition, Sir Edward Seymour. Seymour controlled a group of members referred to by

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[1] *William and Mary Quarterly*, 3rd ser. XIV (1957), 397.

[2] P.R.O. CO /391/10, fol. 331.

[3] *Ibid.* fol. 343.

[4] P.R.O. CO /391/10, fol. 343.

Defoe as 'Tsar Seymskie's Western Empire',[1] which normally worked in conjunction with the Hyde-Granville faction and also had close relations with Harley.[2] In this session the Irish woollen trade was to become a major opposition issue, and if Harley's agitation for the resumption of William III's Irish grants is also taken into consideration, Irish affairs formed a great source of embarrassment for William and the Whig Junto. The accusation that William was favouring Ireland and Holland at the expense of England was ground well chosen by the Tories, and the introduction of Seymour's Irish woollen bill was part of the campaign. The King's government was eventually to be placed in the awkward position of having to choose between its interests in England and Ireland, a choice which during 1697 and 1698 it tried hard to avoid.

But though Seymour's plan was part of a parliamentary campaign, it was also grounded in local political and economic attitudes. Seymour's usual seat was Exeter and only after he had lost the election there in 1695, did he sit for his pocket borough of Totnes. All his links were with the south-west counties, and it was natural that he should attempt eventually to recover lost ground by making the most of the Irish woollen issue. When the next general election took place in the summer of 1698, Seymour and his fellow Tory Sir Bartholomew Shower again contested the Exeter election, and the major theme of their campaign was the danger from Irish woollens. On 19 August 1698, Shower spoke at the Guildhall, Exeter in the following vein: 'that it is the interest of this Kingdom in general, as well as of this country, that Ireland should be humbled. Not that the country should be drowned or the people massacred but that a check be put to their bold attempts for turning the woollen manufacture out of its old channel by removing it from hence thither. It must impoverish us and I wonder our gentry are not more sensible of the danger for it will lessen the value of their lands'.[3] The result of the election was victory for Seymour and Shower.[4]

Thus when Seymour introduced his Irish woollen bill on 14 December 1697, an economic question became caught up into national politics, to be decided not upon grounds of common good but upon trial of political strength. In view of government influence in the Commons, Seymour's bill did surprisingly well and on 21 March 1697/8 passed its third reading. In contrast, however, Hobart's attack upon the East India Company, which had been so successful in the previous session, petered out with a defeat on the second reading on January 24. The explanation for this defeat lay in Montague's plans for raising a loan of several million pounds by opening up the East India trade to all who subscribed to a large government loan. Hobart's bill, had it been allowed to progress further, might well have prejudiced Montague's financial policy.[5]

The parliamentary situation during the first six months of 1698 rested on the fact that the government had decided to use the East India Company for its own financial purposes. In addition, the Junto showed no enthusiasm for Seymour's bill which was held up in the Lords from March to July, when Parliament was dissolved.[6] The pressure for a mercantilist policy derived not from the government but from parliamentary opposition. However William III's government was much weaker where Ireland was concerned than it was on East Indian affairs. There was no Irish group in Parliament as there was an East Indian group, on which the government could rely to cover its flank against the attacks of the opposition. Moreover, the government's position over Ireland was gravely weakened with the publication of William Molyneux's pamphlet *The Case of Ireland*. Molyneux wrote this early in 1698 to refute the supposition that the English parliament could legislate for Ireland, basing his arguments in the main upon John Locke and the *Modus Tenendi Parliamentum*. The timing of its publication was unfortunate since it played into the hands of the Tory opposition. Bishop William King of Derry was no friend of Seymour's woollen bill, but he saw that Molyneux's pamphlet was likely to have a boomerang effect. In April he wrote to Francis Annesley in London, concerning the *Case of Ireland*, that he feared whether 'anything of this nature may be seasonable at this time and whether it will not exasperate rather than prevent the mischief that is coming on us'.[1] King was right. Seymour's party raised the question on June 22,[2] and several full scale debates were held. On June 27 Molyneux's book was ordered to be burnt by the common hangman, and in order to placate the opposition, William III's speech at the dissolution contained a definite promise that something would be done to discourage the Irish woollen trade.[3]

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[1] R. Walcott, *English Politics in the early eighteenth century* (Oxford 1956), p. 63.

[2] B. M. Portland MSS. (S) Seymour to Harley, 13 November 1695.

[3] *Cal. S. P. Dom. 1698*, pp. 378–9.

[4] *Ibid.* p. 381.

[5] 'If the subscribers be debarred from [bringing Indian silks in] . . . they may ask where their profit lies; to go to India and come back again with pepper?' Vernon to Shrewsbury, 10 May 1698. *Letters illustrative of the reign of William III*, ed. G. P. R. James (1841), II, 76.

[6] In April Sir Miles Cook expected a great debate in the Lords and 'a hard tug when it comes to the question'. *Cal. S. P. Dom. 1698*, p. 173.

Meanwhile, Montague had been successful in 'tacking' his 'Two Millions' bill. On July 2 it passed the Commons for the third time, and as soon as it had passed the Lords, parliament was dissolved. So far from East Indian imports being banned or limited, as Sir Henry Hobart and the East Anglian woollen interest had demanded, the trade was being thrown open to a wider circle of merchants. But if for the moment, the East Indian issue had been settled as the government wished, the future for its Irish policy was extremely uncertain. A good deal depended upon support for the Whig Junto in the forthcoming general election and upon the success of the lords justices in persuading the Irish parliament to pass measures to placate the opposition in England.

5

For the moment, attention shifted to Ireland, where the government was faced with the task of summoning the Irish parliament and persuading it to pass measures agreeable to Seymour and the Tory opposition. The first steps were taken by the Irish lord chancellor, John Methuen. On July 29 he produced a compromise solution which he placed before the Board of Trade.[4] As an official of the Irish administration he was naturally opposed to any policy of suppressing the export of Irish woollens but he suggested as an alternative that a high duty should be imposed upon Irish draperies in order to remove the advantage of cheapness which they held at the moment. He also suggested that experienced people should be brought into Ireland from abroad in order to improve linen manufacture. He mentioned in particular a family of refugees, named Crommelin, who had been, and would be, useful in these matters.

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[1] T.C.D. MSS. N. 3.1. fol. 212. 16 April 1698. This was also Sir Richard Cox's view. *Hist. MSS. Com. MSS. of the Duke of Portland*, iii., 609.

[2] *H. of C. Journals*, XII (1742), 324.

[3] *Cal. S. P. Dom. 1698*, p. 339.

[4] He had ceased to be a member of the Board in September, when his place had been taken by a nominee of Blaythwayt and Montague, George Stepney. This was a blow to Locke's influence, since he and Blaythwayt were strongly opposed.

Methuen's compromise solution was adopted, and during the remaining months of the year, he and the lords justices attempted to have a bill incorporating these suggestions passed by the Irish parliament.

Methuen's compromise appears reasonable to the detached mind, and it is not clear at first sight why the Irish parliament did not accept it immediately. The Irish parliament were being asked to impose duties upon Irish woollens in order to subsidise Irish linens. What was there to object to in this proposal, which was intended to forestall a complete prohibition by the English parliament? The answer lies in the fact that this economic change carried with it political and religious implications. The so-called 'Irish' parliament was at this date the constitutional organ of the English Protestant interest. It was they who were 'the flock masters and woollen manufacturers of the Kingdom', [1] and it was they who stood to lose if the Irish woollen manufacture declined. In contrast, linen manufacture was at this date largely, though not completely, concentrated in Ulster,[2] where the majority of linen workers were Scots dissenters.[3] In 1698 the English 'interest' in Ireland, which compared to the Irish and the Scots was a minority of a minority, was being asked to sacrifice its own economic position in order to improve that of the Ulster Scots. It was for this reason that similar plans to encourage the linen industry had failed in 1692 and 1695.[4]

But there was also religion to be considered. During the sixteen-nineties the Irish parliament resisted every attempt made under English Whig auspices to introduce toleration for the Ulster Scots dissenters. From this point of view the Irish parliament was the constitutional organ of the Church of Ireland, and Bishop King boasted in 1696 that 'the dissenters' interest in this Kingdom is really in itself very weak and low, as sufficiently appeared in the last session of our parliament when all their interest combined with the lord deputy's, the speaker of the House of Commons and all his adherents could not carry anything we had not a mind to'.[5] The political and religious concessions which lord deputy Capel had pressed for in 1696, were now being asked for in the economic sphere by Methuen. This was quite clear to someone like Bishop King who, as bishop of Derry in the heart of the Presbyterian North, was acquainted at first hand with the economic strength of the Dissenters and the dangers to the Church of Ireland if the linen industry were encouraged. On 10 March 1697/8 he wrote to Annesley opposing Seymour's bill on the grounds that the north would be gainers by it, and that the Catholics were overjoyed at the prospect.[6] On April 2 he wrote to a correspondent in Coleraine of the mischief which the woollen bill would create in both Kingdoms 'and particularly in the protestant English interest of Ireland'.[7] King's attitude over this general question was also affected by a legal struggle, in which he was engaged at that moment, with the Irish Society over their leasing of certain episcopal lands to Presbyterians.[8]

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[1] The lords justices report 8 July 1699, (P.R.O. TI /62/ fol. 228). *Cal. Treasury Papers, 1697–1701/2* (1871), p. 316.

[2] C. Gill *The Irish linen industry* (Oxford, 1925), p. 21.

[3] P.R.O. TI /62/ fol. 230.

[4] See above. p. 487. n.

[5] Quoted J. C. Beckett. *Protestant Dissent in Ireland* (1948), p. 34.

[6] T.C.D. MSS. N. 3.1. fol. 192. King said that the Catholic Irish 'always looked upon good flocks as hurtful to their interest and therefore the first thing the rabble did in '88 was to destroy them'. *Ibid. loc. cit.*

[7] *Ibid.* fol. 205.

[8] This struggle raised the constitutional issue of the Irish House of Lords. King wished his cause to be heard in Ireland; the Irish Society appealed to the English House of Lords. The

The economic point was put most clearly in a pamphlet, Tisdal's *Conduct of Dissenters*, published in 1712, a few years after the Woollen Act had been passed. Tisdal argued that 'the failure of our Woollen Manufactory sunk the Church interest of Ireland in the same proportion that the encouragement of the Linen manufactory did raise the interest of the Presbytery. The weavers of the former being generally conformists who were obliged to return for England or disperse themselves in the Low Countries, as those of the latter were generally Dissenters who came from Scotland since the Revolution. Tis evident the Dissenters seem at present to be almost in full possession of that considerable Branch of our trade...' He then went on to criticise Crommelin's linen colony at Lisburn 'in the center of the Northern Presbyterians'.

In the face of these religious and economic complications, the passing of Methuen's woollen and linen bills through the Irish parliament was a matter involving considerable political dexterity. The question was all the more difficult because of the administration's need for supply. William III hoped that the Irish parliament would agree to find the £138,000 necessary to keep five of his regiments in existence. There was no question therefore of forcing the woollen and linen bills through. If the lords justices were to be successful in obtaining supply, their treatment of the woollen and linen bills would have to be delicate; and in fact their correspondence with Shrewsbury over these issues revealed great anxiety.[1]

As a compromise solution, Methuen's plan had a good chance of success but it had still to surmount two hurdles—the English Board of Trade and the Irish parliament. On 5 October 1698 at a meeting of the Board, attended by Meadows, Pollexfen, Locke and Hill, Methuen's woollen and linen bills were considered, but it was not until 13 October, after several days discussion that a decision was reached. The Board's view, expressed in a formal 'representation', was that the additional duties of 20 per cent on Irish broadcloth and 10 per cent on the new draperies were insufficient. They suggested an alternative figure of the order of 43 per cent to bring Irish cloth to a 'par' with that of England [2].

There was little chance, however, that these amendments would be accepted by the Irish parliament. Methuen had already felt himself compelled in the interests of harmony to allow the Irish House of Commons to draw up their own woollen bill.[3] To Secretary Vernon in London, the situation in Ireland looked bleak, and on October 25, in one of his regular weekly reports to William, he expressed the view that even though the Irish parliament passed a woollen bill imposing duties upon themselves, these would not be sufficient to meet English objections, especially as the Commissioners of Trade had just reported that an additional duty of 40 per cent was necessary to bring the price of Irish woollens on a par with English.[4]

At this date, there was no doubt that the official attitude in English government circles was based on the hope that an acceptable compromise would be reached in Ireland before the English parliament met. In fact however, there was no sense of urgency in Dublin. No discussion took place on the woollen bill during the months of November and December, and it was not until early

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question was whether the Irish House was the highest court of appeal for a legal issue raised in Ireland. In the event, the decision went against King.

[1] *Hist. MSS. Com. MSS. of the Duke of Buccleuch*, II, 617, 620.

[2] B.M. Harleian *MSS.* 1324, fol. 67; also available in *H. of C. Journals*, XII (1742), 439–40.

[3] *Hist. MSS. Com. MSS. of the Duke of Buccleuch*, II, 600.

[4] B.M. Add. MSS. 40772 (Vernon MSS.) fol. 235.

in January that it was read for the first time. It passed both houses very quickly before parliament was prorogued on January 26. In its final form, the Act imposed duties of 20 per cent on broadcloth and 10 per cent on new draperies.[1] No concession was made to the Board of Trade view that 40 per cent would be necessary to bring Irish woollens to par. News from England presumably acted as a spur, for by then the English parliament had already met, and Seymour's bill had been introduced once more.

But if the Irish woollen interest had agreed to impose duties upon itself, there was no willingness to subsidise the linen industry. The lords justices had expected their linen bill to pass and the woollen bill to fail [2]; and for this reason did not mention the woollen bill in their address to Parliament. In fact however, exactly the reverse occurred. The main opposition occurred in the House of Lords,[3] where Bishop King of Derry was among the leaders. He was opposed to both woollen and linen bills [4] but though the linen bill was rejected, the woollen bill got through.

In view of subsequent events however, all the political energy expended in Ireland appeared misplaced. The real decisions were to be taken in the English parliament which met in December.

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It is conceivable that the Irish Additional Duties Act might well have been an acceptable compromise a year earlier. But by January 1698/9 the political situation in England had changed to such an extent that the Whig Junto were no longer in control of the House of Commons. The opposition, led by Sir Edward Seymour, whose name was noted particularly by Hermitage,[5] pressed hard for the disbanding of William's army and the government was unable to resist this pressure. In these circumstances, Seymour's Irish woollen bill, which he introduced on 20 December 1698, went through three readings in the Commons without difficulty. The government, even if it had wished, would have been unable to prevent its passage, but there was no sign of any officially inspired resistance. It passed the Commons for the third reading on 6 March 1698/9, and then went to the Lords. There, some attempt was made by Irish interests to delay the bill on the grounds that it was framed entirely in the interests of Exeter.[6] But opinion in the Lords was against this or any plea on constitutional grounds. The bill became law in 1699. It forbade the exportation of Irish cloth abroad, including the colonies. Irish woollen manufacture was henceforth to be confined to the domestic market.

All this had been unforeseeable in September when Methuen had drawn up his compromise. The elections had given no ground for pessimism, and Vernon, on writing to Portland [7] had remarked that 'we have a new Parliament and nobody can make a fixed judgement what temper they will be of. It is certain the Animositys they have one against another will be strong and I don't know but little accidents and emergencys may turn the balance either way'. Even when parliament had met, Seymour's candidate was not elected Speaker, which appeared to Hermitage as a good sign.[1] But it soon became clear that for the moment the opposition was in control. Indeed, as is well known, William III threatened to leave the country in anger at the success of Seymour's disbanding measures.

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[1] *Irish Statutes* (*1765*), III, 472–3.

[2] *Hist. MSS. Com. MSS of the Duke of Buccleuch*, II, 615; *ibid.* 616.

[3] *Ibid.* 599, 617.

[4] T.C.D. MSS. N. 3. 2. fol. 68. King to Annesley, 3 February 1698/9.

[5] B.M. Add. MSS 17677 (SS) (Hermitage) fol. 420. v.

[6] *Hist. MSS Com. House of Lords MSS*, III, 107.

[7] 13 Sept. 1698 B.M. Add. MSS. 40772 (Vernon MSS.) fol. 100.

If from the Dublin point of view, the parliamentary situation had grown worse, it was also the same within both the government and the Board of Trade. Somers had been very critical of Methuen in October,[2] and may well have been glad to see his discomfiture in January.[3] The Board of Trade, by January 13, had come round to the view that the exportation of wool and woollen manufactures from Ireland or the English plantations in America 'ought to be prohibited or discouraged, by the most coercive and proper means'.[4] It is worth noting that Locke did not sign this document.

If the suppression of Irish woollen manufactures was undertaken without the consent of the Irish parliament, the encouragement of Irish linen had to be also. The scheme adhered to was that which Methuen had suggested in mid-1696 with the essential difference that it was now to be financed by England. Crommelin, the Huguenot refugee, was to be the official agent of the English Treasury in its scheme for encouraging the manufacture of fine linens in Ireland.[5] Crommelin agreed to supply capital to the value of £10,000 in the form of machinery and raw material and to instruct in the manufacture of fine linens. As its share of the bargain, the English Treasury was to pay him eight per cent on his money, a personal salary of £300 a year, and a further sum to pay three assistants.[6] Thus in the interests of a section of the English woollen industry, linen was to be encouraged in Ireland while at the same time the export of Irish woollen manufacture was forbidden. The turn of the East India Company, politically a much harder nut to crack, came in 1701 when its silks and calicoes were forbidden to be imported into England, save for re-export.[7]

By way of conclusion, it may be suggested that if the Irish Woollen Act was mercantilist, it was mercantilist with a difference. Sir George Clark, in a recent discussion of the topic of mercantilism, has stated that 'there was always a tussle between the interests of trade as the traders understood them and the desire of the statesmen to control and direct economic affairs [but] whenever it came to a sharp opposition between them . . . economic considerations gave way before political considerations'.[8] This may well have been the case with much economic legislation, but exactly the opposite occurred with the Irish Woollen episode from 1696 onwards. The final statute of 1699 was a victory for unofficial lobbying: the Irish Woollen Act was a 'country' not a 'court' proposal; it was most unwelcome to the English government and so far from being an example of the way in which the state controlled commerce it showed how commercial interests control state policy. Constitutional forms in this instance, and perhaps also in others could give a misleading impression by exaggerating the role played by the State. The constitutional procedure leading to acts of parliament was one and the same although the backgrounds in which they took their rise might be vastly different. It was always the state which acted in legislation but the tail might very well wag the dog without the constitutional story alone giving any impression to the contrary. In this way mercantilism can seem to be the process by which the State regulated commerce when the process was exactly the opposite.

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[1] B.M. Add. MSS. 17677 (SS) (Hermitage) fol. 420.

[2] *Correspondence of Charles Talbot, Duke of Shrewsbury*, ed. W. Coxe (1821), p. 557.

[3] Somers regarded Methuen as 'equally the aversion of the Whigs and the Tories both here and in Ireland'. W. Coxe, *op. cit.* p. 558. According to Vernon, Methuen was 'marked out for ruin'. *Letters illustrative of the reign of William III* (1841), II, 218.

[4] *H. of C. Journals*, XII (1742), 427.

[5] *Cal. Treasury Papers, 1691–1701/2* (1871), pp. 372–3.

[6] W. R. Scott, *Joint Stock Companies* (Cambridge, 1912), III, 102.

[7] 11 & 12 William III, c. iii.

[8] Sir George Clark, *War and Society in the Seventeenth Century* (1958), pp. 71–2.

If constitutional language can be misleading, the same criticism may also be levelled at the use of national categories, in this instance 'England' and 'Ireland'. It is usual to describe economic policies in this way. Thus to many Irish historians the Woollen Act has appeared to be 'the beginning of a systematic war waged by England on Irish industrial prosperity'. English historians for their part have continued to use this terminology though in a somewhat different vein. In fact, however, these terms are irrelevant to the main issues. If Bishop King's evidence is to be accepted, the majority in Ireland welcomed this 'systematic war' against the woollen trade: it was the English interest in Ireland, not the Catholic Irish or the Ulster Scots, which felt itself threatened by the act. Enclosure for sheep farming was no more popular with the peasantry of seventeenth-century Ireland than it had been with that of sixteenth-century England. To tell the story in terms of national differences is to introduce extraneous considerations which bring darkness not light. This point is perhaps not irrelevant when economic relations between England and other countries in the seventeenth century comes up for discussion. The truth is that such language is far too cumbersome for the purposes for which it is used.

As a postscript, the question may be raised whether or not the Act did fulfil the purpose for which it was designed. It will be recalled that John Locke [1] had opposed complete prohibition on the grounds that it would be impossible to prevent smuggling and this view seems to have been justified by the later course of events. In 1734 the merchants of Cork admitted openly that they were exporting woollen goods to Lisbon.[2] So far from having been destroyed the Irish woollen industry was still sufficiently interested in exports to press for the repeal of the Woollen Act as late as 1780, when Lord North, under the threats of the Irish Volunteers agreed to its repeal. [3] The dissolution of this piece of mercantilism, however, no more than its inception, was a completely economic story.

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[1] *En passant*, it seems clear that John Locke's role in the formation of economic policy was somewhat less decisive than recent commentators have maintained, e.g. M. Cranston, *John Locke* (1957), p. 406.

[2] *Hist. MSS. Com. MSS. of the Earl of Egmont*, II, 27.

[3] W. E. H. Lecky, *History of Ireland in the Eighteenth Century* (1892), II, 242.

LANDOWNERSHIP AND ENCLOSURE, 1750–1830

By H. G. HUNT

THE object of this article is to ascertain, with special reference to Leicestershire, how far the concentration of landownership was a necessary prelude to parliamentary enclosure, and to determine whether changes in the distribution of landownership in the second half of the eighteenth century and the early nineteenth century were mainly the result of parliamentary enclosure, or the result of factors affecting old-enclosed and newly-enclosed parishes alike. Mr Davies has provided us with some valuable statistics about non-occupying owners as well as about occupying owners; but it is necessary to push his study further.[1]

Where estate papers are not available the only records in sufficient volume for a detailed study of landownership between 1750 and 1780 are the enclosure awards. These documents record the redistribution of the land by enclosure commissioners, and thus reveal the landowning strength of various classes in any particular parish. But for several reason the awards are not an entirely adequate source from which to calculate the division of land amongst owners. The commissioners normally redistributed only the land which had formerly been unenclosed, so that often the award does not specify the size and owners of old enclosures. In such instances the allotments that figure in the awards are misleading, especially where the number of old enclosures was large. It is necessary, therefore, to use only those awards where the total acreage allotted by the commissioners corresponds, at least approximately, to the total area of the parish. Another shortcoming of the awards is that it is rarely possible to tell whether a particular proprietor owned land in an adjoining parish already enclosed. Thus where landowners had property in more than one of the parishes considered later in this article some proprietors may be placed in smaller size-groups than those to which they really belonged. It was, however, mainly the owners of large estates who held land in several parishes, and as these are classified separately any inaccuracy lies in their numbers rather than in the proportion of land they held.[2] A further limitation of the awards is that they reveal the distribution of landownership in one year only, and comparisons with later years are not always easy. Finally, conclusions based on information contained in the awards relate to parishes which had scarcely been affected by enclosure before the middle of the eighteenth century, and do not necessarily apply to old-enclosed parishes.

For the period after 1780 the land tax returns provide valuable information about landowning. But the use of these documents for historical research also raises many problems.[3] It is difficult, for example, to estimate the acreage equivalent to the sums of money paid by each proprietor. The land tax was originally designed as a general income tax on estates, goods, wares, other personal estate and offices of profit, as well as on land.[1] While most personal incomes were excluded from the original assessment, some owners of buildings, tithe owners and officers continued to pay the tax in the second half of the eighteenth century. The accuracy of the original assessments on which tax payments were based varied in different parts of the country, although in the Midlands the assessments are thought to have been equitable,[2] as they were within the counties themselves.[3] The fairness of the assessments must have been reduced, however, where old property was destroyed or new property constructed, and where a change in the assessment did not take place. Payments were often made on 'house and land' as well as on land alone, although the number of houses on which payments were made was usually a small proportion of the total number of houses in the parish. A typical case was that of Keyham in Leicestershire where, in 1831, thirteen of the items of payment were on land alone, seventeen on houses and land, and three on a house alone. The 1831 population census shows that there were 38 inhabited houses in Keyham. Many returns record payments by canal and mill owners, payments by the excise officer, and, where tithes had not been commuted, payments by the tithe owner. In order to obtain an accurate estimate of the distribution of landownership from the returns, payments on all items other than land and houses should not be counted. It is impossible to exclude payments on houses, since they were usually combined with those on land. Fortunately, those items which should not be counted can usually be recognised in the returns, and even where they cannot it is possible to trace the payments on these items back from 1825, for after that year the returns normally specify the property on which payments were made.

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[1] E. Davies, 'The Small Landowner, 1780–1832, in the Light of the Land Tax Assessments', *Econ. Hist. Rev.* I (1927–28), 87–113.

[2] It is not easy to trace all the small landowners holding land in more than one parish. Names of proprietors appearing in the enclosure awards and land tax assessments for various parishes have been compared, and it appears to have been very much less common for peasants than for other classes to hold land in a number of parishes. It is possible, however, that some cases of double-counting have escaped notice, and thus a small error probably occurs in the tables on the following pages.

[3] It is not proposed to give a detailed criticism of the use of the land tax returns as a source for historical research, but mention will be made of those points of difficulty not fully dealt with by previous writers.

The payments on the tithe income in those parishes enclosed between 1780 and 1831 where commutation took the form of a land allotment to the tithe-owner present a serious problem to the historian. These payments should not be counted (when assessing the distribution of landownership) for the years preceding enclosure because they were not on land; after enclosure they became a payment by virtue of landownership, and should therefore be included with the other payments on land. After commutation the other proprietors of the parish (the former tithe payers) continued to pay the same amount of land tax, but the size of their holding had decreased by the amount of land they had given up to the tithe owners. A smaller change in the acreage equivalent to the payment of the individual proprietor probably took place when allotments were made to the owners of cottage common rights who had no field land. It is doubtful whether they all paid land tax before enclosure, but, judging from the jump in the number of owners paying less than four shillings, they probably paid after enclosure. As the total contribution of each parish remained fixed after 1780 the burden of the land tax on the other proprietors was thus lightened. While therefore a comparison of the total land tax paid with the total acreage in any parish will not show exactly how much land each tax payer held, it is possible to obtain an approximate measure by a careful study of the documents as suggested above.

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[1] W. R. Ward, *The English Land Tax in the Eighteenth Century* (1953), pp. 6–7.

[2] H. J. Habakkuk, 'English Landownership, 1680–1740', *Econ. Hist. Rev.* X (1939–40), 9.

[3] E. Davies, *op.cit.* p. 88.

A difficulty in the study of the distribution of landownership lies in the classification of landowners. Some social classes, the clergy and the aristocracy for example, are easily distinguished; but the difference between the more substantial peasant proprietors and the lesser gentry and squirearchy, and between the independent peasant proprietors and the cottagers and labourers who owned a few acres of land, is not always clear. Professor Lavrovsky considered as a separate class those called 'gentleman' or 'esquire' in the enclosure awards.[1] In many enclosure awards, however, these titles appear to have been given freely and inconsistently by the enclosure commissioners: a landowner described as a gentleman in one part of an award often had no title in another part. Moreover, there seems very little point in trying to distinguish the yeomanry as a separate class; the holdings of those proprietors specified as 'yeoman' in the awards varied from one or two acres to several hundred acres.[2] In the following study of landownership based on 44 Leicestershire enclosure awards those landowners who were not aristocrats, members of the clergy or trustees for instititutions have, therefore, been classified according to the acreage they held. This method of classification is not entirely satisfactory, since social divisions do not always correspond to economic divisions. Moreover, the choice of the range of holdings for each class is arbitrary, and it fails to take into account the fact that a holding, say of 50 acres, in one area does not represent the same value as a similar one elsewhere. Nevertheless this method of classification is useful for the purpose of discovering how far landownership was concentrated, and will enable us to compare results with those of earlier writers.[3] Owners of over 200 acres were usually Lords of the Manor or large landed magnates, those with between 100 and 200 acres poorer gentlemen and squires, but rarely peasants. A large proportion of those proprietors with less than 100 acres were peasants, although this class was by no means homogeneous. No doubt many of these proprietors were lower on the social scale than those owning large estates, but some were engaged in occupations not related to the land and had a higher social status than that of the average peasant.

We now consider the distribution of landownership amongst the various social classes in the third quarter of the eighteenth century. The following table (based on the enclosure awards) summarises the distribution in 44 Leicestershire parishes recently enclosed:

Class of owner	Percentage of land held
Aristocracy	17
Clergy	11
Institutions [4]	5
Owners of 200 acres and over	20
Owners of 100 and less than 200 acres	14
Owners of 50 and less than 100 acres	14
Owners of 25 and less than 50 acres	10
Owners of 5 and less than 25 acres	8
Owners of less than 5 acres	1

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[1] V. Lavrovsky, *Parliamentary Enclosure of the Common Fields in England at the End of the Eighteenth and the Beginning of the Nineteenth Centuries* (Moscow-Leningrad, 1940). Christopher Hill's review in *Econ. Hist. Rev.* XII (1942), 93.

[2] Notably those of Prof. Lavrovsky.

[3] For various definitions of a yeoman see J. H. Clapham, *An Economic History of Modern Britain* (Cambridge, 1950), I, 99; W. Marshall, *The Rural Economy of the Midland Counties* (1790), I, 14; H. L. Gray, 'Yeoman Farming in Oxfordshire from the Sixteenth to the Nineteenth Centuries', *Quarterly Journal of Economics*, XXIV (1909–10), 301.

[4] Mainly Colleges, hospitals and charities.

Generally speaking no one class held a predominant proportion of the land. Holding first place among the aristocracy, which owned 17 per cent of the land, was the Duke of Rutland, who possessed large estates in the north-east of Leicestershire, e.g. at Croxton Kerrial, Branston, Waltham, Eaton, Saxby and Sproxton. The Earls of Stamford and Huntington also held large estates in the county. In those parishes where the aristocracy held a small acreage, the latter usually consisted of an allotment in enclosure in lieu of their rights of soil as Lord of the Manor, plus, perhaps, an odd yardland or two of field land. The Earl of Huntingdon, for example, received five acres (equal to one twentieth of the commons and waste) for his rights of soil at Quorndon in 1761, plus another three acres;[1] he also received nine acres in 1759 for his rights of soil at Hoton.

The owners of 200 acres and over (other than the aristocrats, members of the clergy and trustees for institutions) held the largest proportion of the land (20 per cent). This class included many impropriators of tithes to whom a large acreage was transferred when tithes were commuted on enclosure.[2] Like the aristocracy, these proprietors were few in number in every parish, but in the aggregate there were more of them in the county than there were aristocrats. Many had extensive estates in more than one parish in Leicestershire, and were active in promoting enclosure. Typical examples were that of Shukbrugh Ashby who held 81 per cent of the land at Hungarton where he was Lord of the Manor and impropriator of the great and small tithes before their commutation (1761), and that of William Farrell who was Lord of the Manor of Skeffington where he held 79 per cent of the land.

The comparatively large proportion of the land held by the clergy (11 per cent) further illustrates the importance of tithe commutation. The landowning strength of the clergy was considerably increased where the vicar or rector owned both large and small tithe rights, and where he received a land allotment as compensation for their loss. At Husbands Bosworth, for example, the Reverend Edward Colquitt, the rector, received an allotment of 583 acres for his glebe and tithe rights, and thus became the largest landowner in this parish after enclosure. On the other hand where a money compensation was paid for the loss of tithe rights, or where the tithes had been impropriated the clergy gained very little in the way of land at the time of enclosure. At Wymeswould, Thomas Green, the vicar, received only 60 acres for his right of small tithes plus a further 13 acres for glebe – amounting together to three per cent of the total acreage. An allotment of 333 acres for the great tithes went to Trinity College, Cambridge, the impropriator.

At the other end of the scale the proprietors of less than five acres (who were, in the main, cottagers and agricultural labourers) owned an insignificant proportion of the land, but were more numerous than the proprietors in any other class. This is especially noticeable in the case of towns and larger villages where their number was doubtless augmented by artisans and tradesmen. The number of owners with five and less than 25 acres was generally high in these areas for the same reason.[3] The proportion of land owned by those with five and less than 100 acres (32 per cent) was not large, compared with, say, the 51 per cent of land in the hands of the 'peasant type' of proprietor in 11 Suffolk parishes later in the century,[1] but was by no means insignificant compared with that owned by the aristocracy and proprietors with over 200 acres in Leicestershire. Conditions varied widely from parish to parish. In those which were virtually the sole property of the Duke of Rutland small owners were almost non-existent, whilst in others, such as Ab Kettleby, Foxton and Sharnford, the small proprietors with less than 100 acres owned most of the land.

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[1] Presumably either for the field land he held before enclosure, or for a cottage common right.

[2] In Leicestershire 10,000 acres were transferred to lay impropriators in this way. See H. G. Hunt, 'Aspects de la révolution agraire en Angleterre au XVIIIe siècle', *Annales: Economies, Sociétés, Civilisations*, XI (1956), 37.

[3] See H. G. Hunt, 'The Chronology of Parliamentary Enclosure in Leicestershire', *Econ. Hist. Rev.* 2nd ser. X (1957–8), 267.

It would be wrong to say, of Leicestershire at least, that the engrossing of land by a few large proprietors and the almost complete disappearance of the small landowner generally preceded and facilitated parliamentary enclosure by removing a class who would otherwise have opposed it.[2] There were many parishes where landowners each with less than 100 acres would have been strong enough to muster the necessary one-fifth or one-quarter (by value of the land to be enclosed) of opposition to prevent enclosure had they so desired. It is a mistake of course to suppose that these small landowners, or any other class for that matter, were united solidly for or against enclosure. Nevertheless the strength of the small landowners in many Leicestershire parishes does not support the view that their extinction was a prelude to parliamentary enclosure. If, therefore, the peasantry suffered severe losses in the late seventeenth and early eighteenth century,[3] this class, identified as those possessing less than 100 acres, remained by the middle of the eighteenth century, collectively at least, as great in landowning strength as any other single class in many parishes. It must, however, be repeated that these conclusions can be applied only to parishes which had scarcely been affected by enclosure before the middle of the eighteenth century. The land tax returns as we shall see, reveal rather a different story about other parishes.

* * *

The most striking feature of the distribution of landownership in Leicestershire in 1780 was the difference in landowning strength between large proprietors in old-enclosed parishes and in those recently enclosed or still open. The following table reveals the proportion of the land in the hands of proprietors paying £25 and over in land tax (and thus owning 375 acres or more) [4] in three groups of parishes, *viz.* those completely enclosed before 1740, those enclosed between 1740 and 1779, and those still unenclosed by 1780.

	No. of parishes examined	No. of absentee and occupying landowners each paying £25 and over in 1780	Percentage of land held by this class
Parishes enclosed before 1740	41	52	75
Parishes enclosed 1740–1779	36	23	40
Parishes enclosed 1780–1831	30	13	33

We see that both the number of large landowners (both absentees and occupiers per parish and the percentage of the land they held were much greater in old -enclosed parishes than in newly-enclosed or open parishes in 1780. Those proprietors paying £25 and over held three-quarters of the land in old-enclosed parishes, whereas the corresponding figure for open parishes was only one-third. The position of the smaller landowners on the other hand presents a sharp contrast. Those paying less than £10 (owning less than 150 acres) owned 61 per cent of the land in open parishes compared with 44 per cent in those recently enclosed (1740–79) and 14 per cent in old-enclosed parishes. These facts suggest a relationship between enclosure and the engrossing of estates, although it is not possible to tell from the above data whether a decline of small landowners preceded or followed enclosure before 1780, or both. We cannot conclude in the case of the parishes enclosed before 1740, for example, that large proprietors acquired land after enclosure. Professor Habakkuk discovered that buying out of freeholders before enclosure frequently occurred in Bedfordshire and Northamptonshire between 1680 and 1740,[1] and this might well have been the case in Leicestershire. Enclosure by Act of Parliament meant that the opposition of proprietors owning up to one quarter of the land was largely ineffectual, whereas the buying out of opposition was often a more necessary antecendent to earlier enclosure. On the other hand, the land tax returns confirm the impression given by the Awards that the buying out of the small holder did not always precede enclosure after 1780. In 30 parishes enclosed after 1780 there were, on average, 20 landowners per parish just before enclosure, less than one paying £25 and over, and less than one paying between £10 and £25. A typical example was that of Mowsley where there were 20 proprietors, the largest paying £10·3 out of a total for the parish of £65. We may conclude, therefore, that the difference in the landowning strength of large proprietors (paying £25 and over) in old-enclosed parishes on the one hand and recently-enclosed and open parishes on the other has two possible explanations. In the first place, the engrossing of estates was often necessary in order to reach an agreement to enclose in the period before the method of obtaining a private Act of Parliament became common, especially in parishes where a number of proprietors opposed the measure. When, later, it became possible to obtain an Act of Parliament the buying out of those resisting enclosure was often no longer necessary. In the second place, to the would-be purchaser open-field land was a less attractive investment than enclosed land; thus it is not surprising that more of the latter found its way into the hands of those proprietors engaged on increasing the size of their estates.

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[1] V. Lavrovsky, 'Parliamentary Enclosure in the County of Suffolk, 1797–1814', *Econ. Hist. Rev.* X (1940), 15.

[2] It is possible, however, that individuals who would not enter an agreement were bought out.

[3] A. H. Johnson, *The Disappearance of the Small Landowner* (Oxford, 1909), p. 132.

[4] Leicestershire landowners paid approximately 1/4d an acre on average. This figure has been obtained by comparing the total land tax payment with the total acreage in those parishes where all payments were made on land and, in some instances, a small number of houses.

A large proportion of the large proprietors (paying £25 and over) were absentee landowners. Of the 52 large proprietors in those parishes enclosed before 1740 only six farmed their own estates; of the 23 large proprietors in parishes enclosed between 1740 and 1779 only one farmed his own estate, whilst in parishes unenclosed in 1780 all the large proprietors were absentees. Even among the middle-sized proprietors (paying five pounds and less than £25) the degree of absenteeism was very marked in 1780. There were only 26 occupier-owners out of a total of 84 middle-sized owners in parishes enclosed before 1750, 21 out of 89 in parishes enclosed between 1740 and 1779 and 14 out of 69 in parishes unenclosed in 1780. The small number of large and middle sized owner-occupiers is significant: it supports the view, for example, that many of the leading promoters of parliamentary enclosure were absentee landowners. With regard to the small landowners (paying four shillings and less than five pounds), the following table shows the relative numerical strength of absentee-owners and occupying-owners in 1780:

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[1] H. J. Habakkuk, 'English Landownership, 1680–1740', *Econ. Hist. Rev.* X (1940), 15.

No. of landowners in 1780 paying four shillings and less than £5

	Absentee landowners	Owner-occupiers
41 parishes enclosed before 1740	121	75
36 parishes enclosed between 1740 and 1779	291	169
30 parishes unenclosed in 1780	257	175
Total	669	419

As one might expect the proportion of absentee-owners was not so great among the small peasants, but even in this class the absentee-owners far outnumbered the occupying proprietors. Despite the fact, however, that there were more occupying-owners among the peasantry than in any other class, the bulk of the owner-occupied land in enclosed parishes in 1780 did not belong to the peasant class but to more substantial men owning over a hundred and often several hundred acres.[1]

Let us now consider the changes in the distribution of landownership in the 50 years after 1780. In this period there was a distinct tendency for large landowners to grow in numbers and to increase the size of their estates at the expense of the small landowners. The following tables show the fortunes of landowners (both occuping and absentee) paying four shillings to five pounds [2] (i.e. owning on average between three and 75 acres).

No. of landowners paying four shillings and less than £5

	1790			1801			1813			1821			1831		
	absentees	occupiers	total	absentees	occupiers	total	absentees	occupiers	total	absentees	occupiers	total	absentees	occupiers	total
41 parishes enclosed before 1740	115	69	184	98	72	170	66	88	154	92	77	169	85	66	151
36 parishes enclosed between 1740 and 1779	275	175	450	250	207	457	231	198	429	233	185	418	248	145	393
30 parishes enclosed between 1780 and 1831	244	163	407	204	183	387	175	219	394	182	188	370	172	173	345
Total	634	407	1041	552	462	1014	472	505	977	507	450	957	505	384	889

A decline in the total number of these small landowners between 1790 and 1831 is apparent in all three groups of parishes. We can, therefore, hardly attribute this trend solely to parliamentary enclosure; changing agricultural price levels also had an important effect. The fact that the number of small occupying-owners increased during the Napoleonic Wars whilst the number of small absentee-owners fell reflects the ability and willingness of sitting tenants to purchase their farms during the period of agricultural prosperity. The small absentee-owner sold to small farmer and large estate owner while land prices were firm or rising. The years after the war saw the reverse of this situation. Now the small occupying-owners rather than the small absentee-owners diminished in number. Evidently many of the former were unable to continue farming in the face of the fluctuating fortunes of those years, and allowed their land to become part of the larger farms which were better suited to the conditions of the time. Some sold their land outright to the large proprietors, but others, judging from the recovery in the number of small absentee-owners between 1813 and 1821, retained the ownership of their property at least for a time.

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[1] For a fuller account of the owner-occupying class in Leicestershire at this time see H. G. Hunt, 'Aspects de la révolution agraire en Angleterre au XVIIIe siècle', *Annales: Economies, Sociétés, Civilisations*, XI (1956), 34–37.

[2] Payments of less than four shillings are not included in the following tables, since a large proportion of them were made by house-owners.

In the case of the large and middle-sized landowners (both absentees and occupiers) the following table indicates an increase in the proportion of the total land belonging to their estates.

Percentage of the total land belonging to proprietors (occupiers and absentees) paying £10 and over.

	1780	1813	1831
41 parishes enclosed before 1740	86	86	87
36 parishes enclosed between 1740 and 1779	56	57	60
30 parishes enclosed between 1780 and 1831	49	55	59

The growth of these estates is most evident in parishes undergoing enclosure, although this is only to be expected since there was a greater number of small properties left for sale in these parishes. In the old-enclosed parishes the bulk of the land was already owned by large proprietors. The process of engrossing of estates is clearly seen in the case of Sir Henry Halford. His tax payment at Newton Harcourt rose from £41/10/1d to £52/11/4d between 1811 and 1831, while the number of proprietors paying between one and five pounds fell from six to two in the same period. By 1832 Sir Henry had acquired two new farms, for one of which he paid £1/14/4d in tax and for the other £2/4/0d. He also increased the size of his estate at Kilby where in 1813 he paid £27/16/0d in land tax and in 1831 £36/13/6d. Similarly, at Sheepy Parva Mr Wilmot increased his payments of land tax between 1780 and 1813 from £12/4/1d to £20/1/1d. In this same period the number of proprietors paying between one and five pounds diminished from seven to three, and the amount of land tax they paid fell from £19/0/9d to £11/13/1d. The acquisition of land in Leicestershire between 1780 and 1831 was effected in the main by wealthy landowners already well-established in the county.[1] Examples such as that of William Collins of London, who suddenly appeared in the land return for Leire in 1801, do not occur frequently and are confined to the smaller classes of landowner. Among the old established families the Duke of Rutland made considerable purchases of land at Hose and at Knipton where he was already the largest owner in 1780. Clement Winstanley of Braunstone increased his land tax payment from £75/17/8d to £91/13/10d out of a total payment in his parish of £111/6/8d. This represented an increase in his estate of some 250 acres. As a result three proprietors paying between one and five pounds and one proprietor paying between five and ten pounds disappeared. Purchases by the Earl of Stamford at Cropstone between 1813 and 1831 reduced the number of proprietors paying between one and five pounds from eight to four, and their aggregate tax payment from £23 to £10.

Several broad conclusions emerge from this study of the enclosure awards and land tax returns. We have seen that small freeholders were numerous in many open parishes in the third quarter of the eighteenth century, and that their presence was not always an obstacle to parliamentary enclosures. The majority of these small men did not farm their land themselves and were possibly less anxious to retain the open field system of farming than were the small occupying-owners, especially where the small absentee-owner's land formed part of a much larger farm. The number of small freeholders was very much less in old-enclosed parishes at this time, suggesting that their disappearance was associated with earlier enclosure. While there were startling changes in landownership between 1780 and 1831 in certain parishes, the overall picture is one of a steady transfer of land from small to large owners. The process of engrossing continued during the Napoleonic Wars and during the post-war agricultural depression, with an occasional reverse which can probably be attributed more to local circumstances than to general economic conditions. The acquisition of land by the aristocracy and the wealthy squirearchy was most prominent in parishes undergoing enclosure, and this adds weight to the argument that the abolition of open field farming and common rights increased the attractiveness of land as an investment, and also weakened the position of the small holder. But part of the transfer of land from one class to another in parishes undergoing enclosure can be accounted for by the commutation of tithes where it took the form of a land allotment. Small landowners were also disappearing from parishes enclosed many decades before, and we must look to the changing level of agricultural prices as well as to parliamentary enclosure for the explanation of this trend. The declining number of small owners between 1790 and 1813 was almost entirely accounted for by those small absentee-owners who sold their property while conditions were favourable. Small occupying-owners were, in fact, increasing in this period. The purchase of their farms by a number of small tenants during the prosperity of the Napoleonic Wars thus provided a parallel movement to the acquisition of land by the more powerful proprietors. The rapidity with which land changed hands in this period is not, however, fully reflected by the statistics, since there were a large number of purchases and sales which, cancelling each other out, had no effect on the number of landowners in each class. After the end of the war when prosperity became much less assured, the number of small occupying-owners fell rapidly. There is some evidence for Leicestershire that some small owners, particularly those who had borrowed money to improve their lands or to buy their farms, were unable to withstand the post-war depression, and were forced to sell to the great landed proprietors and manufacturers.[1] Finally, it must be admitted that the statistics derived from the land tax returns tell us little about the fortune of those exercising cottage common rights in unenclosed parishes. Owners of legal rights, i.e. those owning cottages standing for 40 years or more, were usually allowed an allotment by the commissioners. But such owners (as distinct from tenants) were often large proprietors of land and are thus difficult to identify. Those who lost their common rights, i.e. those who used the commons by custom only, are not mentioned in the land tax returns; thus their number can only be estimated by reference to the few claim books that have survived, or to the qualitative evidence of contemporary observers.

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[1] Although they were not always resident in the county.

London

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[1] See evidence in *Report of the Select Committee on Agriculture* .... Parl. Papers 1833, V, Q.8572.

XXXIX. TECHNOLOGY AND ECONOMIC HISTORY, 1500–1750

BY D. C. COLEMAN

Two dissimilar pictures of economic and, especially industrial, development in Europe during the two or three centuries before the Industrial Revolution are available to the seeker after enlightenment. In one the background is Continuity. Peasants toil with ancient tools and antique methods; domestic weavers and spinners jostle on a Brueghelesque canvas with urban craftsmen; the scale of economic organisation is mainly small, and technology is nearly stagnant; predatory nobles or coarse squires, feudal in countenance if not in fact, guard their own immemorial elms and grab any others in the offing; the middle ages—in that examination chronology of English monarchs—really ends not in 1485 but in 1760. The other picture, which is more of England than of Europe, offers Change: not yet dizzy but accelerating nevertheless. Commercial expansion east and west brings bigger ships and bigger merchants; economic life is carried forward on a surge of technological enthusiasm from the Renaissance; capitalism dawns; and the middle ages go under in a welter of revolutions—a price revolution, an early industrial revolution, and a commercial revolution (or two).

It is no use trying to reconcile the two views by resort to that ineffable cliché: 'the truth lies somewhere between the two'; nor to hide behind that other bulwark against thought: 'these centuries mark a transition period in history', etc. Far more refined and sophisticated portraits of an age than the crude caricatures drawn above will still not conceal the differences. In a sense both views are right and both wrong. That which stresses continuity draws heavily upon the continuing backwardness of agriculture, the slowness of population growth, the pervasive textile industry and its putting-out or domestic arrangements. It perhaps pays insufficient heed to important exceptions; and is open to the charge of confusing the typical with the meaningful. Protagonists of the other view may equally be identifying the spectacular with the normal; and, in digging for the historical roots of modern industrialism, be finding amongst our yesterdays too many and too significant anticipations of today. Differing notions about the contemporary 'state of the arts' contribute to both pictures. In particular, certain ideas about technology have had an important influence in the apparent discovery of early examples of large-scale industrial operations, of big plants or factories supposedly employing large numbers of workers—cases, so to speak, of historical giantism.

Vol. III of the new *History of Technology* [1]—very large, very expensive, and very well produced like its companions—may help to disperse the fog of confusion, but only patchily. Where light breaks through, the technology of 1500–1750 is revealed to be, on the whole, more static than mobile. Many a new technique was introduced not in this period but in the later middle ages, and thereafter until the Industrial Revolution, was merely extended in its use, sometimes undergoing various minor improvements meanwhile. Smelting furnaces with water-powered bellows, fulling mills, gig mills, paper mills, gunpowder and firearms, printing, sundry mechanical pumps and drainage devices, the full-rigged round ship: the fifteenth century had known all these and more. Several contributors to this volume specifically note the lack of change. 'No spectacular new discoveries or inventions modified metallurgical methods during the sixteenth and seventeenth centuries'; [1] 'with the invention of the . . . hollow post-mill . . . in the Low Countries in the fifteenth century the main types of mill were established';[2] in cannon founding 'surviving evidence indicates that fundamentally the same methods were employed from the beginning until about 1750 . . . [the] account of the casting of the great cannon used against Constantinople in 1453 could easily be applied to the operations of European foundries in the seventeenth century';[3] 'during the sixteenth and seventeenth centuries there were no drastic or fundamental changes either in the materials or in the form of bridge construction. The technique of bridge-building was still largely medieval'.[4] There were innovations of course: the Dutch ribbon loom, or the use of coal in glass-making; the important advances which were made, especially in the later seventeenth and early eighteenth centuries in clocks, scientific instruments, and the techniques of navigation; and, in the same period, the atmospheric engine and the coke-smelting of iron (neither of which are treated in this volume, being reserved for Vol. IV, which deals with the Industrial Revolution). There were improvements in design and some increases in size: for example, 'after 1500 pumping machinery became much more important than during the Middle Ages. No new devices were invented, but many changes in design appeared. Mines and public or semi-public water-works required a progressive increase in the size of installations'. [5]

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[1] *A History of Technology*, III, *From the Renaissance to the Industrial Revolution, c. 1500–1750*, ed. by Charles Singer, E. J. Holmyard, A. R. Hall and Trevor I. Williams (Clarendon Press, Oxford, 1957, £8.8*s*).

The overwhelming impression, however, is of a technology making only a very few advances from the positions gained in the later middle ages; and of most of those advances occurring not in the much-publicised sixteenth century but from the later seventeenth century onwards. That ancient brick wall of historiography, 'the end of the middle ages', *c.* 1500, is not here a true dividing line: in the history of technology as in that of economic life it is an obstruction which should be demolished. The implications for the economic historian of a technology which, at least in the short-run, is nearly static are not to be ignored. It not only made but few advances, but it was barely seen by most business men before the later seventeenth century as a potential factor in improved output or bigger profits. Without an advancing technology providing, and being known to provide, major opportunities for reducing costs and increasing output, the optimistic expectations of a truly expansive economy are not readily born. When technical cost-reducing innovations are so rare then the burden of matching supply to increased demand in conditions of competition tends to fall upon organisation or upon labour, meaning in practice a search for new patterns of division of labour or a pressure upon wages and conditions of work. As Dr Singer himself observed in a lecture given when the whole *History* was being planned, it was 'the age of Hooke' which opened 'a new period for the history of technology'.[6] But the real possibilities of that new technology were still not so blindingly obvious to contemporaries a hundred years later as to prevent Adam Smith from writing an economic analysis based essentially on a society without any of the dynamic problems brought by a rapidly advancing technology. Whence, then, come these ideas of early technological progress, these notions of historical giantism?

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[1] C. S. Smith and R. J. Forbes, p. 27.

[2] Rex Wailes, p. 89.

[3] A. R. Hall, p. 363.

[4] S. B. Hamilton, pp. 419–20.

[5] A. P. Usher, p. 330.

[6] Charles Singer, *Technology and History*, being the Hobhouse Memorial Lecture, 1951 (1952).

One important cause is itself an element of technical progress: the development of printing. The flow of printed books in the sixteenth century, on technology as on other matters, provides a new category of source material for the historian. For the first time, detailed and well-illustrated accounts appeared of processes existing but hitherto concealed behind crude drawings and occasional manuscript references. The importance of this for the extension of contemporary knowledge and the future of science has been emphasised only too often. But its converse implication for the historian has not always been heeded, i.e. that an improved account of a technique must not be confused with an improvement in the technique itself. Mr. Waile's remark that the main types of windmill had all appeared by the fifteenth century has already been quoted; he goes on to note, however, that it was not until Ramelli's work [1] was published in 1588 that there were available drawings of mechanical details of these mills. They marked 'a distinct advance over the fanciful sketches in earlier publications purporting to describe machines'. [2] Comparison of most of the contemporary illustrations in Vol. II with those in Vol. III of the *History* shows this to be true of many techniques. But we must not too readily conclude that publications such as Ramelli's did much at that time to disseminate technical practices. For windmills, again, it was not until the early eighteenth century that any specification was published 'complete and detailed enough to enable a windmill to be built from it'.[3] Empirical methods, trial and error, personal contact between artisans—these, not treatises, were the main channels by which techniques were improved or extended. The treatises probably remained quite unread by those actively concerned with practical production. Their greatest importance lies in their testifying to a new range of interests amongst a tiny group of the intelligentsia. In short, they contribute more to the history of ideas than to the history of practices, in spite of appearance to the contrary.

Furthermore, the new illustrations in the new printed books are themselves suspect. They often mislead, and normally in one direction only: they tend to magnify the size of the plant or installation. Professor A. P. Usher—noting incidentally that the contemporary use of metals in the construction of machinery proceeded only very slowly—puts a valuable finger upon this clue to historical giantism. He reproduces the illustration from Agricola's *De Re Metallica* (1556) of a gear-operated chain-and-bucket pump, and compares the illustration with the accompanying description. He writes: 'the figure shows the details of the parts as well as the complete machine, but it is important to note its false scale. The man turning the crank would surely suggest a wheel of 5 or 6 ft. in diameter on the main driving-shaft, though it is stated to be only 2 ft'.[4] The engaging and realistically drawn wood-cuts from *De Re Metallica* are often reproduced in modern books seeking illustration of early processes and practices: they might well repay careful and critical scrutiny. But they would probably emerge from such an examination better than the still more commonly used illustrations from the *Encyclopédie* and other similar eighteenth

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[1] Agostino Ramelli, *Le Diverse et Artificiose Machine* (Paris, 1588).

[2] *History of Technology*, III, 89.

[3] *Ibid.* 89.

[4] *Ibid.* 326–7.

-century sources, mainly French. These are habitual offenders in the crime of exaggerating the size of plant and the normal scale of operations. They frequently depict industrial processes being carried on in absurdly large buildings, great vaulted constructions providing improbable settings for prosaic activities. In exhibiting a process and its tools they are sometimes reasonably accurate: in providing realism of environment they rarely are. How many eighteenth-century paper mills in France or anywhere else ever resembled the unlikely building, with its distant fountain visible through an open-door of a bare and vaulted room, depicted in Lalande's *Description des Arts et Métiers* (1761) and reproduced in this volume?[1]

Then there is the problem of typicality. Even when accounts or illustrations really were derived from practice—and there is no doubt that many were—as opposed to the theoretical ingenuity of their authors, how is one to know whether they are typical, be it in nature of technique, in size or cost of plant? Observers tend to observe the exceptional because it is exceptional, or comment on the best and biggest because they think it laudable and worthy of imitation. But economic history has to concern itself with economic life in the context of the society as a whole; and thus with 'the typical, representative . . . . . . fact, rather than the unique, individual fact'.[2] Often enough our only guide in the evidentially dark ages is probability; and here to find the rule against which hypotheses must be measured demands some reflection upon the economic implications of the techniques of the age, and upon their relationship to prevalent economic and social circumstances. This should cure the worst excesses of belief in historical giantism. Koulischer provided some such reflections many years ago:[3] they merit more attention. In predominantly agricultural societies with endemic underemployment some form of putting-out system normally offered, whenever techniques permitted, easily the most economic and socially apposite method of meeting a widening demand. And even in those industries where techniques demanded some concentration of work, the slowness of processes, the low productivity, the notorious unreliability of water- or wind-power, and the difficulty of securing capital combined to provide the maximum inducement to keep the plant small rather than large. Only where the nature of the product was such as to demand close supervision and the concentration of highly-skilled workers was there normally any real economic incentive for large workshops.

Contemporary observations about allegedly large numbers employed at a particular plant or by an industry have also to be treated with the greatest care. Many were designed to impress some authority with the virtue of the enterprise as an employer of the poor; the employment of one man tended to be magnified into the employment of all his dependents; and in any event quantitative precision in such matters was hardly a strong point of the age. But above all, many such large estimates included workers apparently concentrated in centralized establishments but who in fact were either part-time employees, laid-on or -off according to seasonal or other fluctuations, or outworkers engaged in some ancillary tasks which did not have to be carried on at the central plant. The hard core of those directly, regularly, and centrally employed in, e.g., glasshouses, paper-mills or iron-works was often very much smaller than is sometimes supposed. The remarks about a small paper-mill in Hertfordshire in the 1780's apply, *mutatis mutandis* to many similar installations in other industries: it was said that 'the general average number of people about the mill' 'was five men and a boy', but there were 'sometimes more, sometimes less, sometimes girls, sometimes women and sometimes men'.[1] This is not to say that truly large plants did not exist in these early centuries. Undoubtedly they did, and some were influential and important. Most developed industries, however, had a large number of units; and had all or many of them been of the size suggested by some contemporary accounts or illustrations, and had they worked constantly, then the output would have been far greater than the contemporary demand for the product. The range in size of installations was immense. The vast soap works depicted by Diderot and D'Alembert and reproduced in the *History* [2] is no more representative of the ordinary soap-boiling establishment than was Van Robais' works at Abbéville typical of textile manufacture, or an East Indiaman or English first-rate typical of the ordinary merchant vessel of the time.

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[1] *Ibid.* 416.

[2] T. S. Ashton, 'The Relation of Economic History to Economic Theory', *Economica*, N.S. Vol. XIII, No. 50 (1946) 82.

[3] J. Koulischer, 'La Grande Industrie aux XVIIe et XVIIIe siècles: France, Allemagne, Russie', *Annales*, III (1931), 11–46.

Many a large plant or massive concentration of workers in this pre-Industrial Revolution era owed its existence, directly or indirectly, to state support. Abraham Crowley's remarkable factory owed not a little to naval demands;[3] the great arsenals and naval dockyards at Brest, Toulon, Rochefort, Chatham, Woolwich and Portsmouth were far larger than most examples of private enterprise; the Gobelins or Savonerrie were typical of nothing other than themselves; the very large works of the French Royal Plate Glass Co. were not simply a product of private enterprise operating on a competitive market. But size of plant or concentration of workers must not be confused with size of organisation. Fuggers or Welsers in Germany, de Geer in Holland and Sweden, Foley or Crowley in England: such men unquestionably worked on a large scale, just as had their medieval merchanting and banking counterparts. But their scale of operations was not dictated simply by the technical capital needs of mining, iron-working or the arms trade. That deeper mines and larger iron works required capital beyond the range of the small man is obvious enough; but just as not every mining district was the same as southern Germany or north-eastern England, so were these great enterprises the product of exceptional men. The economic historian has to take account both of the 'representative facts' and of these unrepresentative men. He must not suppose they are the same thing.

Nor must temporary phases of prosperity or depression be overlooked as progenitors of historical giantism. Many a big enterprise or would-be 'factory' owed its life to the nourishment of boom conditions and perished with the cold winds of a slump. How many successors were there to Winchcombe or Stumpe after the boom had gone? Their real significance lies in their isolation. How many large enterprises proved uneconomical? Anyone impressed by the vast sums spent on the Mines Royal should remember the losses which it made.[4] In industry, as in trade, many a monopolistic, joint-stock giant in seventeenth-century England or France had to give way to smaller and more realistic competitors.

It would be pleasant to record that this third volume of the *History* strikes a clear balance, puts technology into perspective. But expectations are not made rosy by such statements as that of Mr R. Patterson, of the Castle Museum, York, who, writing about textiles says that 'this period saw the firm establishment of the factory system in Europe'.[1] At least one of the editors does not believe this nonsense: 563 pages later on, Mr Hall implicitly contradicts Mr Patterson by remarking, reasonably enough, that 'the growth of the factory system .... was scarcely evident before the eighteenth century in Britain, and occurred even later in America and Continental Europe'.[2] The particular and varying nature of textile processes offer a perfect opportunity for a most revealing exposition of technology and its relation to economic development. Far more could have been made of that opportunity. Would you care to know, enquiring reader, about those 'New Draperies' which gave new life to part of the most widespread industry of sixteenth-century Europe? You will not even find them in the index. The section on ships and shipbuilding [3] draws heavily upon navies, especially the English navy, and although the merchant vessel is not ignored, the chapter is curiously uninformative on the methods and practices of making ordinary ships. Nor is it free from contradictions. On p. 492 Mr Naish tells us that in the sixteenth and seventeenth centuries 'most ships seem to have been built in docks', but on the very next page he says that although it 'remained usual to build large ships in docks, all other sizes were constructed above the water-level on hard ground'. In fact most ships were not large ships, *ergo* ...... Only ten pages earlier Mr Naish had himself observed that most ocean-going merchant ships of the seventeenth century averaged about 200 tons, remaining smaller than warships or East Indiamen. It could be added that the average was probably less than this, certainly if account is taken of the many small coastal vessels; and, moreover, that warships of much greater tonnage were sometimes built on simple 'hards'.[4] On a different subject, the brief account of agricultural progress in eighteenth-century England by the distinguished historian of technology, Professor R. J. Forbes, may bring a passing shudder to those engaged in trying to dispel old myths for the benefit of undergraduates. Here are Tull and Townshend as of old, the latter introducing 'the Flemish method of cultivating turnips, clover from Spain, and manuring by marling'; the enclosure of the open-fields causes, without qualification, rural depopulation; and landowners and tenants abandon the old farms of crop-rotation 'in favour of legume-rotation and field-grass husbandry under the influence of the late medieval town economy'.[5]

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[1] Customs & Excise Library: Excise Trials, vol. 542, p. 353. For some interesting comments on employment in French glass works, see W. C. Scoville, *Capitalism and French Glassmaking, 1640–1789* (California, 1950), 152.

[2] P. 704.

[3] I am indebted to Mr M. W. Flinn for this information.

[4] M. B. Donald, *Elizabethan Copper* (London, 1955), pp. 240 ff.

These examples seem to suggest that some contributions might have benefited by more careful attention to recent work in economic history. The one chapter by a professional economic historian, however, scarcely lives up to the criterion set out in the preface to Vol. I of this *History*, viz. that the work as a whole was to concentrate upon being a 'history of how things have been done or made', thus proving useful as 'an auxiliary to the more specialist studies of historians, archaeologists, and other scholars'. Professor Nef's chapter on 'Coal Mining and Utilization' does not tell the reader precisely how coal was normally mined during this period. Although saying something of coal mining on the Continent of Europe and elsewhere, the chapter is mainly concerned with the growth of the British industry and, above all, with the wider implications of this for economic development in these islands. Professor Nef's views on this subject may well be familiar to readers of this journal. His observations on the immediate importance of the early growth of coal production in England are, in general, hardly open to doubt. But perhaps not every economic historian would think that seventeenth-century England is usefully or accurately regarded as 'a coal-economy';[1] and not every reader of the *History of Technology* will know that the illustrations on pp. 75 and 82 relating to coal mining in the Liège and Newcastle-on-Tyne districts, both dated 1773 and both coming from the same French source, give a misleading impression of the normal scale of European coal mining over the two-and-a-half centuries from 1500 to 1750.[2]

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[1] P. 151.

[2] P. 714.

[3] By Mr G. P. B. Naish.

[4] For some examples, see J. Ehrman, *The Navy in the War of William III, 1689–97* (Cambridge 1953), pp. 70 ff.

[5] P. 15.

Mr. Hall's 'Epilogue: the Rise of the West', which concludes this volume, includes a discussion of the relations between aesthetics and early technology. An important part of the argument runs as follows:

> ..... when advance to a .... more developed stage of technology occurs, it is likely to take place (as J. U. Nef has pointed out in Chapter 3) in industries where quality is less important than quantity, beauty than serviceability .....
>
> ..... Technological advances are usually directed towards the standardization and repetition of a good article in large numbers; but the rarity of works of exceptional craftsmanship is part of their virtue. For the same reason there is less significance—and less profit—in discovering an improvement to a manufacture whose products are bought only by a restricted group of wealthy patrons; inventors have always been attracted by large markets. Again, the basic mechanical or chemical processes involved in the making of goods for general consumption are likely to be simpler in nature than those used where the product is more perfect [*sic*] and expensive ....[3]

This argument begs a number of questions not all of which can be considered here. Is it, for example, the inventors who are 'always attracted by large markets'? Or the business men? But a central feature of the argument is that it has the effect of equating virtue with rarity, beauty with expensiveness. In so far as it says that if goods are produced for sale to, say, 20,000 poor people instead of to 20 rich people they must be cheaper, it is surely so true as to be trite. But it does not follow that because they are produced by methods which allow the making of 20,000 instead of 20 they are *necessarily* uglier. Rarity is not a part of beauty: it is a part of price, given a demand for the rare object. The fact that in practice many, though not all, mass-produced wares are less attractive than individual items does not mean that the fault lies with the technology, with the machine itself. It lies rather with a failure to see that beauty is not a quality with unchanging forms. A good deal of nineteenth century hideousness of design resulted from trying to apply to machine-made goods the shapes and ornaments once produced by hand, and, aesthetically, failing miserably. Only in recent times have we begun to escape from this absurdity, and attempts to improve industrial design today are not aided by the revival of these dreary arguments about the necessary beauty of the hand-made. Beauty is not peculiarly a product of medieval craftsmanship and least of all does it stem from a limited output for the very rich. This particular brand of art-snobbery is today fashionable amongst those to whom the end of something vaguely known as 'the medieval world' marks a new Fall of Man. It is an argument which too readily leads to a belief that beauty and an improved standard of living for the mass of the people are in some way incompatible. It has some unattractive implications; it is being supported by false comparisons in economic history and by defective logic; and it has no place in a history of technology. 'Medieval manufacture', Mr Hall writes elsewhere in his 'Epilogue', 'was either widespread, crude, and economically inefficient or exclusive, highly dexterous, and likewise economically inefficient. The new technology of the eighteenth century was to be efficient, technically advanced and yet wide in its markets'.[1] Exactly. And when comparisons are made in terms of aesthetics and technology it is important to compare like with like. Was the exclusive and highly dexterous typical of the middle ages, or the widespread and crude?

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[1] P. 83.

[2] Both illustrations come from J. Morand, 'L'Art d'exploiter les mines de charbon de terre', in *Descriptions des arts et métiers faites ou approuvées par Messieurs de l'Académie Royale des Sciences*, Vol. 3. (Paris, 1773).

[3] P. 710–11. Similar and related arguments will be found in J. U. Nef, *Cultural Foundations of Industrial Civilization* (Cambridge, 1958), as well as in Professor Nef's earlier work, *La Naissance de la civilization Industrielle* (Paris, 1954).

'A history of how things have been done or made'. Those contributors who, apparently at least, kept this purpose in mind and preserved a balanced view of the relations between technology and contemporary social and economic life have written some admirable chapters. Mr Michael Clapham's section on printing provides a detailed, lucid, and realistic account; it brings out clearly the nature of the basic innovations and the changes therein; shows the extreme slowness of the processes; and sets out exactly what a printing office was like and how its work proceeded at different times during the period. Mr Hall's own contribution on military technology is another valuable and fascinating chapter. It serves both to underline the economic importance of the growing military needs in the societies of the time, and to reveal the lack of technical progress in weapons and their methods of manufacture after the immediate consequences of the invention of gunpowder had been worked out. Professor A. W. Skempton's chapter on 'Canals and River Navigation before 1750' is another scholarly contribution, distinguished not only by the useful information it gives, but by its wide geographical sweep which admirably surveys achievements in many parts of Europe.

It is impossible to comment in detail on all the 25 chapters of this fat volume. But there is a persistent unevenness throughout. Whilst some contributions are excellent, others give the impression of being superficial in their descriptiveness, of leaving out the more difficult questions or not knowing what they were; some seem to have been built on foundations which include neither historical imagination nor the hard grind of research. Mr Martin S. Briggs' two chapters make agreeable reading, but the long one called 'Town-planning from the Ancient World to the Renaissance' is curious less by its presence in a volume devoted to the period 1500–1750 than by its presence in a history of technology; and the briefer one on 'Building Construction' draws so much upon the churches and cathedrals in which men worshipped as to leave room for only the most scanty treatment of the houses in which they lived, worked, and died. The criteria of relevance and arrangement could be questioned. If town-planning is deemed to be part of technology, what of book-keeping and accountancy which pass unnoticed? Does the evolution of the calendar merit 23 pages from the Astronomer Royal? Without the growth of paper manufacture the flow of printed books, themselves the sources from which most of this volume has been compiled, would have been impossible. In Vol. II (p. 189), in a brief note about parchment it was stated that paper would be 'considered in a later volume'. The consideration turns out to be a meagre appendix to the chapter on printing, attempting inadequately to cover the whole history of the manufacture until the nineteenth century. Some criticisms of arrangement hinge not upon this particular volume but upon the whole work. For example, there was a valuable chapter on power by Professor Forbes in Vol. II and this subject is also treated separately in Vol. IV. But in Vol. III water- and windmills pop up all over the place, and anyone seeking light upon such sources of power must look not simply to Mr Wailes on windmills or Professor Usher on machines but, *inter alia*, to Mr L. E. Harris' interesting chapter on 'Land Drainage and Reclamation'.

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[1] *History of Technology*, III, 713.

There are certainly some very difficult problems in arranging the chronology of treatment in a history of this kind, and the editors forestall some criticism by their discussion of this in the Preface. The fact remains that the general plan adopted does not always make for maximum accessibility in using the *History* as a work of reference. But is that what it is supposed to be? I am not sure. Maybe it is really something rather different, something to be dipped into for occasional enlightenment, general interest, even, to quote from one reviewer (in *Technology*) of this very volume, to 'keep the professor and his nephew amused in front of the fire'. If this is its task it will surely succeed.

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REVIEWS

GREAT BRITAIN

R. H. TAWNEY. *Business and Politics under James I.* (Cambridge University Press. 1958. Pp. 325. 40*s*.)

Professor Tawney's new book is a contribution both to economic history and to the history of government. Lionel Cranfield's early career was that of mere merchant, trading to Germany and the Low Countries in the closing years of the sixteenth century. Later his interests widened to include revenue farming, dealings in land, and other activities which brought him into touch with the government of James I. Later still he moved into politics, becoming Lord Treasurer in 1621 and Earl of Middlesex in 1622: he was the first English businessman to scale the political heights and he was also the last until Joseph Chamberlain. He fell from power in 1624, destroyed by an unholy alliance of Buckingham, Prince Charles, placemen and courtiers threatened by his reforming zeal, and possibly also parliamentarians with a political interest in the failure of all attempts to make the crown solvent.

The Cranfield Papers on which this book is chiefly based have not yet been published in entirety. The reader cannot therefore assess the precise significance of what has gone into Professor Tawney's book and what has been left out. On the business side, the papers seem a little disappointing: it has, for example, been possible to discover the volume of Cranfield's exports only for fragmentary periods. Without this information we cannot get a clear picture of the growth of his commercial interests nor much idea of the ups and downs of business conditions in seventeenth-century Europe. What we do get, on the other hand, and it is well worth having, is a study of the relations between the business principal in London and his factors abroad. This is a subject that so far has attracted more notice from continental than from English historians. Yet in Cranfield's trade, success was due as much to his factors as to himself. They received his wares, travelled for customers, found buyers, juggled with credit terms, selected the most profitable import lines, bought them, juggled with credit again, reported the market, watched political events, and all at a time when advices from home travelled with maddening slowness. Antwerp, Middelburg, Hamburg, Danzig: these were the merchants' universities of the seventeenth century where young men needed to learn fast to keep their heads and their credit. Just how successful Cranfield was in trade it is hard to say; and the question remains whether he moved into politics because he had made his pile or because he had hitherto failed to make what he regarded as a satisfactory pile. Professor Tawney's section on Cranfield as a businessman (which occupies a third of the book) also contains some masterly sweeps over the European commercial scene: those who have been lucky enough to hear him lecture on this subject will have the pleasure of catching some familiar echoes.

Cranfield the administrator, as one would expect, is better documented than Cranfield the businessman. His public career from 1613 to 1624 occupies the greater part of the book, and here Tawney shows once more what a good historian he is. Cranfield's struggle to reform the navy, the wardrobe, the household, the wards, the exchequer, has an epic quality. With Gladstonian vigour for retrenchment (though without Gladstone's personal integrity), the task of shoring up the *ancien régime* was prosecuted. Any diligent person can tackle a single administrative problem and get satisfactory results, but Cranfield proved himself a great administrator by planning reforms and improvements in many fields at the same time. Administrative history is not, in general, exciting, colourful or dramatic: reputations for soundness are more easily won by those who write it than reputations for brilliance. But Professor Tawney's account of Cranfield's work admirably communicates the atmosphere of the last chance, and what is more the reader is left with the conviction that the facts have not been forced and that it really was the last chance. James I, more ready to have his mistakes pointed out to him than tradition suggests, supported Cranfield until the march of senility overtook him. With Charles, a stiff-necked donkey, and Buckingham, an incompetent blackguard, in the saddle, all hope of thorough reform had gone. In this section of his book Professor Tawney puts his genius as a writer to the most searching test known to the historian—to tell the story of an unsuccessful administrative reformer. And he emerges with triumph. Dullness is dispersed by conceits such as that which makes the Extraordinary account creep from its corner in 1621 'making frightful faces' and by shrewd jabs like the definition of a self-supporting Ireland 'in the idiomatic Anglo-Saxon sense of supporting not only herself but English troops and officials as well'.

If a book attributed to Professor Tawney were not in some degree controversial, one would question the attribution. *Business and Politics* does, in fact, open up a subject which, unless investigated soon, will become matter for controversy. Tawney sympathises, he tells us, with 'the venerable doctrine of the presumptive wickedness of the rich'. He expresses this sympathy, the reader should perhaps be warned, not only explicitly but also by referring to business associates as 'cronies', to partnerships as 'cliques', and by the use of other faintly question-begging words. Nevertheless, these are moral judgements and an author is entitled to apply his own moral criteria. But Tawney grafts on to his doctrine the heresy (or so it seems to me) of the presumptive cleverness of the rich. Businessmen grown rich in trade (Cranfield among them) gather round the court and crown to take the valuable pickings of speculation in revenue farms, monopolies, crown lands, projects and so on: they outwit all who oppose them, bribe venal officials and line their pockets out of the public purse. That 'office', i.e. direct public service, could be rewarding is obvious enough: what seems to me open to question is whether the profits of indirect relations with government were as impressive as Tawney assumes. In the first place, we should remember that when government made a bargain with a private person ('concessionaire', 'projector'), the economic information and statistical data on which the contract was grounded were primitive in the highest degree. The results might be favourable to one side or the other, but it was hard to tell with certainty. Secondly, if the outcome of the bargain turned out to be unusually favourable to the individual there was no guarantee that he would be left quietly to enjoy his fortune. In England, parliament, the courts of common law and public opinion, to say nothing of aggrieved rivals, were keenly on the watch for anti-social abuses, and the first two had some power to restrain and even to overthrow those that came before them. And, finally, we ought to be put on guard by the tale of businessses and business men, in England and Europe, who put their faith and their money in princes and lost. Mr Robert Ashton has warned us that the risks of dealing with government were high: Burlamachi, Vyner, Backwell and probably Cokayne would have agreed with him. So would the investors who lost their money in joint-stock projects which, baited by governmental concessions, looked like good things and turned out to be otherwise. In Europe the unreliability of governments destroyed the great bankers of the sixteenth century. In Spain the government contract for the supply of slaves was almost a kiss of death. In France governmental sponsorship of overseas trading enterprizes did not prevent (and may have caused) a long series of failures. The profits of 'graft' could undoubedly be high: but so were the risks, and especially so in a *dominium politicum et regale*. Is it possible that businessmen and bankers were not so clever after all? If a metaphor is needed to describe their relations with the court, 'moths round a candle' may be nearer the truth than 'flies round a jampot'.

Business and Politics is not vintage Tawney because there never can be such a thing: he does not mature in wood but bubbles and effervesces in bottles. Nevertheless it does recall for economic historians of recent growth the magnitude of his services to their craft. Before a new generation, having skimmed through 'The Rise of the Gentry', leaps to the conclusion that Tawney is wrong but romantic, the solidity and durability of these services should be remembered. That there is such a thing as 'the early modern period' in English economic history and that the characteristics of this period have been ascertained is due to Unwin, Scott and Tawney. Between them they provided starting points for almost all subsequent work. They found the sixteenth and seventeenth centuries largely unexplored, they learned how to work in them, and they passed on their knowledge. This is not, of course, to say that even now perfect techniques have been evolved: in particular the weight to attach on the one hand to 'literary' evidence and on the other hand to the crude statistical data that can be devised is the great unsolved problem of early modern economic history and will probably always remain a matter for individual belief and conscience. But anyone facing this problem for the first time can still look at *The Agrarian Problem in the Sixteenth Century* for an example of a judicious blend of both types of evidence.

Secondly, Tawney is a writer with no equal in the historical field at the present time. Compounded of the Old Testament, metaphors that shine like beacons (sometimes it must be admitted dazzling rather than illuminating), and an irony that gently exposes the follies of men, Tawney's style carries the reader over and through the dullest subjects. In the past he has often addressed himself to intrinsically interesting themes—the history of ideas or of society—where the function of style is to gild the lily. But in *Business and Politics* he has tackled a subject in which a compelling literary style is the only way, except perhaps an appeal to duty, that interest can be aroused and held.

And finally, in this book as elsewhere, Tawney has been a historian of courage. He does not believe himself to be in possession of a unique understanding of historical problems and processes, but he does believe that he, in company with other scholars, can arrive at some greater understanding. He takes an optimistic view of what the historian can do; he does not, certainly, make a devastation and call it truth. *Business and Politics*, by its clarity and firmness, increases our understanding of many problems of the Jacobean age. At the same time it directs attention to other problems which have not yet been studied. In other words, Professor Tawney's latest work can stand comparison with his first.

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CHRISTOPHER HILL. *Economic Problems of the Church from Archbishop Whitgift to the Long Parliament.* (Oxford. 1956. Pp. 367. 42*s*.)

It is a commonplace that every generation of historians interprets the past in the light of its own experience. Revolutions, those catalysts of human conflict, are particularly prone to such treatment, and the English upheavals of the mid-seventeenth century have suffered like the rest. Time was when they were regarded as a struggle about religion and liberty—though liberty by whom to do what was never very satisfactorily explained. More recently they have been seen as a series of class and economic conflicts, though opinion has differed sharply about their precise nature.

Mr Hill is aware of the inadequacy of all these doctrines and has realised that the major duty of the present generation is to tackle the infinitely delicate and complex task of weaving together religious beliefs, economic interests, and constitutional theories in a single chain of causation. Motives which jostled and jangled within the minds of the seventeenth century must not be isolated by the historian. He has attacked the problem obliquely, by driving a huge economic salient into the religious front and then fanning out behind the lines so that the two armies will be for ever inextricably confused.

In England, as elsewhere in Europe, the sixteenth century witnessed a massive secularisation of ecclesiastical property. Monasteries and chantries were swallowed by the Crown. Bishops and Deans and Chapters, having narrowly weathered the reign of Edward VI, found themselves under Elizabeth subjected to less open but almost equally effective attrition at the hands of the courtiers and nobility. Meanwhile the parish clergy were also hard-pressed by the price revolution and by impropriations, which transferred much of their income to the pockets of the gentry, nobility, and Colleges. As a result the social status and the educational and moral qualifications of both clergy and episcopacy failed to satisfy the new generation, and the cry arose to abolish the latter in order to subsidise the former. In this crisis in its history, in the latter years of Elizabeth, the Church suddenly found itself some powerful allies. First the Crown and then a section of the wealthy laity realised that the Church, and particularly the episcopacy, was an integral part of the Establishment whose fall might well endanger the position of both peerage and monarchy. The landed classes were at last brought face to face with the ambiguity of their position. As devout Christians they deplored the ignorant condition of the clergy and were opposed to simony, pluralities, and non-residence; but as lay impropriators, patrons of advowsons, and potential courtiers their own economic interests were bound up with these very abuses. As Calvinist reformers they were highly suspicious of the powers and wealth of the bishops; but as members of the propertied classes they feared that the abolition of episcopacy would unleash similar attacks on their own authority and vested interests.

This stalemate continued until the end of the 1620's, when it was broken by serious attempts on both sides to attack the problem at its roots. The puritans began to put their consciences before their purses. They set up a company financed by public subscription, which began buying up lay impropriations and restoring the money—but not the authority—to the church; and as individual patrons or as congregations they began to increase the salaries of the clergy—of their own choosing—by voluntary augmentations. Against these developments Laud set in motion the full powers of the state. He crushed the scheme for buying impropriations, attacked augmentations as the thin end of the wedge of Independancy, and attempted to restore the financial health of the church by force. He tried to squeeze increased tithes out of the towns, especially London, and increased salaries out of impropriators. The result was, as Mr Hill puts it, that 'Protestantism, patriotism, parliamentarianism and property all worked together against Laud's attempt to reverse history'. And so in the 1640's Bishops and Deans and Chapters went down, but, significantly enough, tithes survived.

Such is the story told by Mr Hill in a book that is full of originality, wit and learning. Sometimes Mr Hill uses the word capitalism in a way that the orthodox historian would regard as rather vague and capricious. Here and there one feels that a probing into manuscript material would have revealed the answer to unsolved problems. The way Bishops and Deans and Chapters leased their lands, for example, is obviously a very important question and a study of the records of an important diocese could have thrown much light upon it. Again statistical tables of patronage and impropriations would have been very helpful. More serious is the doubt whether this concentration on the economic problems of the church, necessary as it was for the task in hand, really succeeds in achieving that symbiosis of economic and religious factors which Mr Hill has so much at heart. Thus Mr Hill points to the poverty of the parish clergy, resulting in their lamentable ignorance and their low personal quality. But the parish clergy had been in this brutish condition throughout the middle ages. Was it not the rise of the Calvinist conscience, with its emphasis on the importance of the moral qualities of the priesthood, that at last made the issue one of burning importance? Again Mr Hill points out that before the civil war lay patrons were filling livings with men of their own religious persuasions, and that as a result 'lay patronage made Puritanism an issue within the church'. But could it not equally well be urged that 'Puritanism made lay patronage an issue within the church' by alarming conservatives like Laud? Lastly Mr Hill describes in detail the economic pressures exerted by Laud, but says nothing of the parallel drive for the 'beauty of holiness', the encouragement of organs and altar-rails. Who is to say which did more to alienate men's minds?

This criticism is, of course, a plea for a different sort of book, which takes both doctrine and economics within its embrace, and it could reasonably be argued that such a book has only been made possible as a result of Mr Hill's penetrating analysis of the economic aspects taken in isolation. Because of its achievement in paving the way for such a synthesis, the *Economic Problems of the Church* must be recognised as the most important contribution to our understanding of early seventeenth century England to have appeared since the War.

Wadham College, Oxford LAWRENCE STONE

L. MARGARET MIDGLEY (Ed.). *A History of the County of Stafford.* Vol. IV. (Oxford University Press: for the Institute of Historical Research. 1958. Pp. xxiii + 197. £4.4*s*.)

This is a welcome volume, for it brings the V.C.H. series of translations of Domesday Book, with their valuable identifications of places and informing introductions, one stage nearer completion. The Introduction in this case—by Mr C. F. Slade—begins with a section on pre-Conquest Staffordshire which is very involved and in places scarcely intelligible unless the reader has beside him the volume of the William Salt Society to which it refers; but its later sections, in addition to the usual account of the landowners and their estates, contain some useful and interesting tables which summarize, both for the several hundreds and for the county as a whole, many data of real importance for economic history, anda re a valuable addition to the information provided in Darby and Terrett's *Domesday Geography*. But the attempt to translate the puzzling statements of Domesday about the length and breadth of woodlands into square miles is, to say the least of it, hazardous, even apart from the doubtful length of the Domesday 'league'. And it is a pity that, in the Domesday map the estates of the King, the Bishop of Chester and Robert de Stafford are distinguished by different kinds of black lines instead of the colours employed in earlier volumes of the V.C.H., for colours reveal the position at a glance in a way such lines do not.

The rest of the volume comprises the parochial histories for the hundred of Cuttlestone. They form a vast quarry of facts in which the economic historian may find a good deal that concerns him, if he works hard to get it. It is piquant to learn that in 1543–4 an enclosure which the lord made and sowed with corn was destroyed by people claiming common of pasture (p. 113). But in general what we are given can only be described as a series of old-fashioned miscellaneous local histories raised to a higher power through improved scholarship and a greater abundance of detail. Of course the economic historian is not the only person to be considered. Yet when he is allowed such an interesting bit as the section about the changing size of farms during the past century at Stretton (p. 167), he cannot help asking why similar particulars are not supplied for other places. Outside his subject, too, the inclusions and exclusions are often hard to understand. The church bells and their dates (though not their weights) are always recorded; but organs are rarely mentioned and nothing is said about their makers or their character. There is not much point in being just told that at Haughton 'the organ case was given in 1899' (p. 141). It is perhaps of some economic interest to read in the history of Gnosall: 'There was a Polish agricultural workers' camp in Gnosall from 1947 to 1948. In 1956 part of Sukars Hall manor-house was used as an egg-packing station' (p. 111). But it would be more important surely to know, for each of the parishes dealt with, how many of their sons fell in each of the two world-wars.

Lower Heyford REGINALD LENNARD

R. A. MCKINLEY (Ed.). *A History of the County of Leicester*. Vol. IV. (Oxford University Press: for University of London Institute of Historical Research 1958. Pp. xx + 483. £6.6*s*.)

This innovating volume in the Victoria County Histories, the first devoted exclusively to the history of an important English provincial town, contains some 450 pages and an enormous amount of information. The writing of town histories is comparatively backward in this country, and it is to be hoped that this volume will mark a step forward. However the (one supposes) inevitably fragmentary method of composition characteristic of the Victoria Histories involves not only the chronological partition of the work but the separation of the economic, social and other aspects of the town's history. This makes it impossible for the development to be presented as a whole, so that this volume, into which so much work has been put, will necessarily remain a work of reference.

Economic history to 1660 is dealt with in two chapters, and from 1660 to 1835 in two further chapters, combined with administrative history. The histories of the hosiery, footwear and elastic web industries since 1835 are dealt with in separate sections, and the engineering industry is described in Volume III on a county basis. It must however be noted that there is important material on the first two of these industries embodied in the earlier general chapters. Among other industries, as Dr Kerridge emphasises in an interesting chapter based largely on probate inventories, we must place agriculture in the forefront. In the early seventeenth century capitalist farmers in Leicester were the most important employers of wage labour in the town, as well as excelling the craftsmen and shopkeepers in wealth.

There is much fascinating social history of the modern and contemporary periods in the chapters on Parliamentary history, though it is odd to find that it is in these chapters rather than in those on Social and Administrative history, that information about the trade union and labour movement is to be found. The sections on special industries have, of course, a good deal about workers' conditions.

The most disappointing part of the volume, that which breaks least new ground, is the medieval. In view of the spade work done by Mary Bateson and C. J. Billson one would have thought that the medievalists would be able to tell us something fresh about early urban society. For if medieval urban history in this country has not of late been notable for new approaches, we could well learn from Professors Thrupp, Wolff, Schneider and others abroad.

University of Birmingham R. H. HILTON

JOHN LE PATOUREL (Ed.). *Documents Relating to the Manor and Borough of Leeds, 1066–1400.* (Thoresby Society, Leeds. Vol. XLV. 1956. Pp. xxxiv + 131.)

The 750th anniversary of the foundation of the borough of Leeds in 1207 by Maurice de Gant is suitably marked by Professor le Patourel's publication, in scholarly translation, with selected texts in the original, of *Documents Relating to the Manor and Borough of Leeds, 1066–1400.* Neither as manor nor as borough was Leeds then of much consequence, but, partly for this very reason, the surveys and accounts here printed, together with the careful edition of the charter of 1207, are interesting, especially for the complex history they reveal in the fourteenth century. The manor, part of the Lancaster inheritance, (the editor traces the manorial descent in detail), naturally suffered greatly in 1322, the farm of the greater part of the demesne falling from £21 to £11.10.0 per annum: even in 1341 it had only recovered to £16. In 1343 there was another major change, when the piecemeal leasing of the demesne, up to then applied to only a part of the demesne, was extended to practically the whole (with, of course, regular sale of services). Initially the lord lost money on this, but by 1356 he had raised the rents and was getting more or less what he had done previously from the single farm. The last crisis period shown here was in the years around 1390 when the lord, finding it impossible to fill certain vacancies, was forced to substantial reductions of rent (amounting to about 43% on the new lettings). The fortunes of the borough were different, but hardly better. It was much less affected by the disorders of 1322, but there was a minor crisis in 1325–7 when the lord was driven, first to the unwelcome (and unique) step of temporarily letting the burgesses farm their own revenues, and then (since no one would farm the borough because of the low price of corn) to manage the borough directly. The recovery, however, was probably rapid, since somewhat later the lord was increasing rents and in 1341 the farm was almost back to its pre-1322 level. In the second half of the century, on the other hand, despite increase in the fulling (until a decline at the very end of the century) and perhaps in some other industrial tasks, and despite much capital investment in the mills (which, incidentally, provides useful technological information), the lord's revenues from the borough declined noticeably; the 1382–3 lease represents a loss of about 24% on the 1341 figure. The borough is also interesting for the detailed evidence of social differentiation, which is clearly hinted at in the foundation charter of 1207—subdivision, sub-letting of tenements—and which, as the 1341 extent shows, became quite as pronounced as in some much larger boroughs. Altogether this is an important volume; and another powerful reminder of the need for more work on medieval private, not to say royal, boroughs.

Corpus Christi College, Oxford T. H. Aston

Acts of the Privy Council of England, July 1628 to April 1629. (London: H.M.S.O. 1958. Pp. iv + 490. 105*s.*)

Since the Privy Council Register is among the most accessible of English central government records, there is perhaps little ground for complaint at the policy of printing these volumes *in extenso*, even if this involves waiting an inordinately long time for a volume covering an extremely short period at an impossibly high price. The format of the present volume is slightly changed, and for the better. The index is magnificent, and, despite initial frustration, the policy of giving references to entries rather than pages considerably lightens the labour of searching.

The contents bear eloquent witness to the economic dislocation caused by war. Restraints on the export of war and other materials, the stay of shipping at the time of the projected La Rochelle expedition, the need for naval convoys for the herring and coal fleets, and, perhaps above all, the difficulties experienced by merchants in the French trade and the ingenious shifts to which they were compelled are all well represented. It is, however, in the sphere of policy that this source is most valuable to the economic historian. And here there is nothing very much to disillusion the reader who has been brought up on a healthy diet of Unwin and Tawney. He can watch the council prohibiting the importation of foreign train-oil and whale fins, and filling the pockets of the Greenland merchant at the expense of the English consumer; killing the fiscal and paternalistic birds with the same stone by issuing licences to export prohibited commodities, and allowing corn to be exported in times of local glut; giving its support to the Eastland, Muscovy and Levant companies against the competition of interlopers; chiding the London magistrates for their leniency with vagrants, and ordering special measures to be taken to relieve the distressed clothing districts of Essex.

The pattern of paternalism extends to the colonies. The settlers of Bermuda and Virginia are sternly warned against undue reliance upon tobacco as a staple crop. Instructions to the new governor of Virginia provide a blue-print for the government's ideal of a tightly regulated economy, in which the germs of the old colonial system can be seen in the provision that colonial products must be exported through England. Lip-service is paid to the desirability of fostering the re-export trade, but the council is chiefly concerned with preventing losses in the customs revenue.

Only one feature of the traditional picture of government policy is lacking, a fact which reflects the ambivalence of the council's attitude to rural distress.

Far from protecting the hapless peasant against eviction, it can here be observed intervening against local resistance to Vermuyden's drainage schemes, and complaining at the dilatory conduct of the Flintshire justices in failing to suppress riots against a *royal* enclosure.

University of Nottingham ROBERT ASHTON

MARGARET WALKER (Ed.). *Warwick County Records: Hearth Tax Returns*, Vol. I. *Hemlingford Hundred: Tamworth and Atherstone Divisions. With an Introduction to the Warwickshire Hearth Tax Records by Philip Styles.* (Warwick: Published by the Clerk to the County Council. 1957. Pp. xcviii + 433. 42*s*.)

The Records and Museum Committee of the Warwickshire County Council already have a reputation for providing the student with printed versions of important historical evidence, edited with meticulous scholarship (and, one might add, very reasonably priced). The first volume of Hearth Tax Returns, covering only two divisions of one of the four Hundreds in the county, presents the available information in a form to which nothing can be added. Each variant entry occuring in the assessments and exemptions of ten different years, from 1662 to 1674, is noted, and where necessary, subsidiary evidence is adduced from parish registers to establish the identity of occupiers beyond doubt. The 1662 assessments (which were fairly full) serve as a base in the account of each parish, and there are addenda containing new names and their subsequent variations. Each parish account is prefaced by a short statistical summary of entries, and some very brief topographical and administrative information.

The introduction by Mr Styles is a book in itself, and certainly the most authoritative treatise on the history of the hearth tax yet written. Though it deals mainly with the details of the working of the system in Warwickshire, it is in fact a most illuminating account of the fiscal experiments of the restored Stuarts. Each change in administration, from Sheriffs to Receivers and to Farmers, and then back again to Receivers, and so on, is shown as arising out of some basic weakness of the whole machine. We have fascinating glimpses of local politics. John Newsham, who was Receiver for the county from 1670, was not just an agent for the Crown—he was a well-known local Tory who ran foul of such Whigs as the coal owner, Sir Richard Newdigate. At Aston, (now almost in the centre of Birmingham), Sir Robert Holte defied Newsham over the question whether smiths' hearths were to be assessed, and succeeded in protecting the local industries for a considerable time.

From the point of view of the political historian or the genealogist, the volume leaves nothing to be desired. But the economic historian may well lament the absence of just a little more information which might have greatly increased the usefulness of the book to him. The territory covered contains some areas of interest in industrial history. At Griff, there operated one of the earliest Newcomen engines. In Polesworth, in 1673, there is a reference to 50 certificates of exemption for people who 'receive collection weekly and live neer the colepitts upon the common'. We should have liked more information about the agricultural and industrial structure of the divisions, and their further progress. There are, in each parish, brief summaries (but without criticism) of the population figures from the 1676 (Compton) Census, and from Dugdale's *Warwickshire* of 1730. But the 1801 figures for comparable areas are not given, nor is there any attempt to link up with Gregory King's work. King is briefly mentioned in the preface, but since Coleshill and Shustoke for example, are two parishes which figure prominently in his work, one would have expected some attempt at using the available material. What, for instance, was the relationship of the greatest number of houses found in each parish, multiplied by King's coefficient, to the 1676 or 1730 populations, and to the 1801 census? What was the rate of growth of the non-industrial parishes compared with the industrial ones?

But perhaps the economic historian should be thankful for what he has been offered in such convenient form, and get on with his own work on the solid basis provided. One looks forward to the next volumes in this series and to other counties commissioning work in the great tradition initiated by such scholars as Mr Meekings and Miss Marshall and now, most happily, Miss Walker.

University of Birmingham D. E. C. Eversley

D. C. Coleman. *The British Paper Industry 1495–1860. A Study in Industrial Growth.* (Oxford: Clarendon Press. 1958. Pp. xvi + 367. 55*s*.)

Paper is both a necessity and a luxury of modern industrial society—a necessity in that without it the organization of business and the distribution of goods are barely conceivable; a luxury in that a Britain at war between 1939 and 1945 counted four-page newspapers and shortage of wrapping materials among the lesser of its privations. By 1860, the year in which Dr Coleman ends his study, the British paper industry was catering for little more than the necessities of the nation's life: *per capita* consumption, at 8 lbs, was less than one-sixteenth of what it is today. Yet even this low figure represented a five-fold increase since c. 1715, and reflected a growth in home production from 3,000 to 100,000 tons per annum.

The major part of Dr Coleman's book is devoted to this century and a half of expansion. The early growth of the paper industry presents patterns familiar to the student of the textile industries. Like the woollen industry, paper owed its early development in large measure to government favour and to the stimulating influence of alien immigrants: and like both wool and cotton it early established itself in those river-valleys where abundant supplies of pure water were available to serve as an essential raw material, and as a source of power for the primitive stamping-mills. Organizationally, in spite of the absence of outworkers, the industry developed along similar lines to the woollen industry. Small-scale enterprise was the rule until the end of the eighteenth century, and the cost-structure of the industry reflects forms and problems of organization closely akin to those encountered in the cotton and woollen manufactures. The further mechanization of the early nineteenth century, in paper as in cotton, encouraged the rise of larger firms and stimulated forces of integration already at work in the industry.

If Dr Coleman's study serves to emphasise the common features of industrial growth, however, it also brings out the peculiar problems of individual industries. The expansion of the paper industry was particularly impeded at two points: by a system of duties which, at first protective, had before 1860 become a hindrance to the growth of markets; and by a persisting difficulty in obtaining adequate supplies of raw materials—a problem not finally solved until wood-pulp was put to service in the last quarter of the nineteenth century. On the effect of the excise Dr Coleman expresses the opinion that while the duty undoubtedly raised the price of paper—and thereby restricted its sale—'it is very doubtful whether it stifled enterprise and advance in the industry'. This verdict may be set beside his view—justifiable on the evidence—that the ready adoption of the Foudrinier-machine after 1800 was in a large measure due to the desire of paper manufacturers to break the power of skilled labour in the industry. (Glasgow cottonspinners, it may be noted, adduced similar motives for introducing self-actor mules into their mills in 1833.) Taken together these two conclusions suggest that, in the paper industry at least, the prospect of cost-reduction may have acted as a greater stimulus to innovation than the parallel prospect of increasing output.

Dr Coleman's study, firmly based on blue books and business records, is a notable addition to the growing number of works on the infancy and adolescence of British industry. One's only regret—and it is a regret, not a criticism—is that the story is not here carried forward into the years when widening markets and a new raw material were reshaping the industry into its twentieth-century form. A reviewer may perhaps also be allowed to voice a regret of a different kind. This is a book of moderate size (some 100,000 words) but of immoderate price. The explanation lies in part in a generous type-face and a wealth of diagrammatic illustration; and, no doubt, still more in the general economics of book production and distribution. But it is sad, to say the least, that a book of this kind should be placed beyond the pocket not only of the student and young scholar but even, one fears, of many public libraries.

University College, London A. J. TAYLOR

WILLIAM WOODRUFF. *The Rise of the British Rubber Industry During the Nineteenth Century.* (Liverpool University Press. 1958. Pp. xvii + 246. 35*s.*)

The title of Professor Woodruff's book arouses expectations that are only partially realised. It is primarily a study not of the British rubber industry, but of one firm, Moulton and Co., of Bradford-on-Avon, Wiltshire; but since 'an adequate description of the vital . . . role played by Stephen Moulton in laying the foundations of [the rubber] industry in the West Country could not be given without relating it to the experiences of other early rubber pioneers' (p. ix), he tells us something of the work of Charles Goodyear, Charles Macintosh and Thomas Hancock. Important as these figures are in the early career of Stephen Moulton, a description of this limited aspect of their functions can hardly be regarded as amounting to a study of 'the rise of the British Rubber Industry'.

The main content of this part of Professor Woodruff's study consists of a clear account of the discovery of the all-important vulcanization process—whereby india-rubber was turned from a malodorous, sticky, perishable, and intractable material of little practical use into a sort of 'elastic metal' with a multitude of applications—and the lengthy patent litigation to which it gave rise. The source of crude rubber, and the international trade in this material are described and illustrated by some useful statistical data. The basic processes of manufacturing rubber are explained, and the dependence of English manufacturers on the Americans in matters of technique is emphasized.

But, basically, it is the story of Stephen Moulton that Professor Woodruff tells. How Moulton came to England in 1842 bearing samples of Goodyear's 'improved' rubber in order to sell the American inventor's patent to British manufacturers, how he decided to manufacture rubber himself and what factors influenced his choice of Bradford-on-Avon as a suitable location for this venture, and how he raised the necessary capital for converting and equipping a disused textile mill for rubber manufacture: all this makes fascinating reading. Here, it would seem, is a clear scholarly account of a small, but significant, business.

It has to be said, however, that some aspects of the story, e.g. the firm's markets, are based on only a shallow reading of the magnificent collection of Moulton Papers. In consequence, the author has been led into errors in emphasis and into several factual mistakes. In July 1858 (the date that appears in the caption to the lower set of diagrams opposite page 70 is incorrect) George Spencer and Co., a firm engaged in supplying rubber springs and mechanicals to railway companies and rolling stock contractors, became one of Moulton and Co.'s customers. By the late sixties this firm was purchasing about 38% of Moulton's total output, by the late seventies about 85%, and throughout the eighties between 90 and 95%. Professor Woodruff mentions this fact at the end of a chapter (p. 110, the proportions he gives are too high) without comment. This is a major error of ommission. It results in a picture of the Moulton firm which cannot stand up to analysis, particularly in the form in which it appears in the chapters on 'Markets' and 'Manufacture', and completely obscures the essential problem presented by the overwhelming influence exerted by Spencer, the middleman, on Moulton, the producer. The latter became little more than the works manager of the former, and the whole of the significance attached by Professor Woodruff to Moulton's pricing system and other acts of policy is vitiated by this fact.

Professor Woodruff, thus, has fallen between two stools. His account of the history of Moulton and Co. is not satisfactory because so many promising themes remain unexplored and those that are are frequently marred by erroneous emphasis. (For example, in the chart on page 101 the 'price line [of india-rubber springs and rings] is based on a quarterly average of the selling price to five of Moulton's largest customers', yet Spencer and Co.'s purchases of these articles completely outweighed those of the other four buyers cited, especially after 1875, when this firm took over 80% of Moulton and Co.'s total sales of these manufactures. Furthermore, no discount was granted to Spencer after March, 1860). He has concentrated on the period during which Stephen Moulton managed the firm without making it clear that when his son, Alexander, took over in 1861, the firm entered upon an entirely new phase of its existence as the producing agency of the middleman.

As for 'The Rise of the British Rubber Industry', we have a right to expect that such a title will include more than scattered references to the activities of Macintosh and Co. and the North British Rubber Co.; each of these concerns is worthy of something more than this. And what of William Warne and Co., Silver and Co., David Moseley and Sons, Limited, the Ancoats Vale Rubber Co., and the others, some of which are not even mentioned in this study? And why should no reference be made to the *History of the Rubber Industry*, edited by P. Schidrowitz and T. R. Dawson (Cambridge, 1952)?

Economic historians will be grateful, however, for the many illuminating things said about 'Work and Wages' in Moulton and Co.'s 'Kingston Mill', about the unsatisfactory state of the patent law in the mid-nineteenth century, and the use of bills of exchange and cheques. But, as Professor Woodruff admits, 'as a whole the history of the British rubber industry still remains to be written' (p. ix).

University of Nottingham PETER L. PAYNE

JOHN CLIVE. *Scotch Reviewers: The Edinburgh Review, 1802–1815.* (Faber. 1957. Pp. 224. 25*s*.)

This study of the early Edinburgh Reviewers is to be welcomed as an attempt by a historian to understand the thought processes of a particular group of young men who, though their protests and prescriptions were, as he tells us, sometimes waggish as well as whiggish, nevertheless represented one of the most comprehensive group attempts of the nineteenth century to understand the contemporary condition of society and to provide guidance between the various choices confronting it.

In some respect economists will find the story unsatisfactory, for the author does not give much time to distinguishing what is often known on the continent and elsewhere as their 'scientific contribution'. But this is quite proper, for explicit abstract theory played no great part in their writings. This is not a book for the reader who wants tools and concepts, but is eminently for the reader who wishes to feel the whole texture of society.

Not, of course, that such an ambition can ever really be fulfilled. The present work provides an excellent example of the difficulties of understanding the formation of opinion. The author is well aware of the difficulties. His exposition is, so to speak, funnel-shaped. Many elements are made to converge in the minds of this group of young men; there they form a more or less consolidated stream of attitudes and proposals; this they discharge in a more or less unified condition into the minds of their readers.

The principal theme of the book is the middle operation. Professor Clive deals carefully but deftly with the struggle of these young men toward relevance and synthesis. The impact of their writings is the most difficult of the three themes; the author feels that it is virtually impossible to handle, devoting to it a brief epilogue.

But perhaps something more might have been said about the process of convergence. It is in fact suggested that this had already taken place philosophically a generation earlier in the mind of Adam Smith. Like Smith, the reviewers were fearful that the result of economic progress, so beneficial in liberating the human spirit in literature and the arts, must also involve debauchery in the upper classes and misery in the lower. As between Smith and the reviewers, however, the former saw the middle class as saved from dabauchery by the fact that, in market competition, they policed one another, whereas the latter, in a somewhat Rousseau-like manner, seemed to feel that the middle order of society was healthy because its members, intrinsically good like all men, were not subjected to the trials and temptations of the classes below and above. But the upshot for both was that the only hope lay in the middle classes, who though sharing the refinements of civilisation, were yet proof against its deceits; hence their strategic and responsible position.

The University of Glasgow S. G. CHECKLAND

A. R. SCHOYEN. *The Chartist Challenge. A Portrait of George Julian Harney.* (Heinemann. 1958. Pp. viii + 300. 25*s*.)

Few historians would claim that George Julian Harney was representative of the Chartist movement; on the contrary, he was decidedly the 'odd man out'. Dr. Schoyen's title, *The Chartist Challenge*, for a biography of Harney is therefore somewhat misleading. Moreover the Chartist phase comprises only the first half of his long life. He was the youngest of the Chartist leaders in 1839 (he was barely twenty-one when the Convention met) and he lived until 1897. After 1855 he played little part in working-class movements. Nevertheless Dr Schoyen's masterly book is the most considerable contribution made to the study of Chartism in recent years.

Dr Schoyen's achievement is remarkable in view of the scarcity of his sources and their scattered nature. The ease of his presentation hides the immense industry behind this scholarly book. He has given a perfectly honest picture of Harney (who was suspected at one time of being a police spy), and brought out the significance of his activities both as a Chartist leader and as a radical journalist.

Harney's importance lies in his opposition to collaboration with middle-class reformers, and in his insistence on social equality in addition to an extension of the franchise. He was an exponent of the class war (it was he who first published an English translation of the *Communist Manifesto*). Yet he quarrelled with Marx. In Dr Schoyen's words he anticipated 'those empirical British working-class leaders who were finally to attempt to build a non-Marxist socialist state', though he differed from them radically in his agnosticism and in his repudiation of constitutional methods.

Dr Schoyen (p. 89) refers to an Appendix A in which he has sought to correlate the conflicting accounts of the events of November 1839. Inadvertently, this appendix has not been printed in his book, but it may be found in the original Ph. D. thesis (University of London) out of which the book grew. Its absence is regrettable, and students of Chartism will find it well worth while to consult it for the new light which it throws on the obscure events associated with the Chartist march on Newport on 3–4 November.

University College of Wales, Aberystwyth DAVID WILLIAMS

WALTER E. HOUGHTON. *The Victorian Frame of Mind, 1830–1870.* (New Haven: Yale University Press. 1957. Pp. xvii + 467. 48*s.*)

Some of the reviewers of this remarkable book have been more guarded than others in their estimates of its utility, but it is impossible not to congratulate its author on the safe delivery of a really weighty piece of work, the product of masses of reading, affectionate interest, and keen sensibility, which is bound to stimulate and help all students of early Victorian England. On almost every page he says or cites something valuable, and his notes are clear and copious.

This is at least a *good* book; before anyone dare call it more than that, however, its principles and method must be carefully considered. I do not think it comes quite up to its author's own estimate; it will be very helpful to everyone who seeks to understand the 'mind' of the age in question, while failing to say the last words about it. Houghton believes that an age (or period, or era) has an objectively perceptible mind, and that you can understand it, complicated and even schizophrenic though it may be, just as you can understand, if you try hard enough, the mind of even the most unusual person. He maintains that the most fruitful way towards this understanding is through literature in its broadest sense, history, sermons and so on, as well as poetry and fiction, wherein 'the concrete outlook of humanity finds its expression'; and the mind thus elucidated he lays out to view under the heads of Emotional Attitudes (Optimism, Anxiety), Intellectual Attitudes (Anti-Intellectualism, Dogmatism, etc.), and Moral Attitudes (the Commercial Spirit, Earnestness, Love, etc.).

The questionableness of its central assumption in fact affects this book less than might be expected. Houghton was lucky in having been drawn to the study of the early Victorians, who do, between about 1830 and about 1870, show a good many features of a common and unified culture—among their upper and middle classes anyway, with whom alone he is concerned. Fixing the terminal points of most other period-minds would be more difficult, and some other essays in this genre have been much less successful. But even this quite widely accepted 'early Victorian period' has its difficulties. The social and economic foundations were shifting all the time; many peoples' ways of viewing life must have been radically changed *during* this period (let alone have been already changing before 1830) by transformations in the size of their towns and the quality of town life, in their reading, their plumbing, the ways they made and invested their money and worshipped their gods. And, setting this point aside, there are sources other than literature from which a period's characteristic way of thinking may be compounded. That Houghton has generally ignored them does not by any means necessarily invalidate his conclusions but it must make them more shadowy. What of the classical economists, whose absence is very noticeable? What about the law? It mattered in two ways: men's minds were set in their habitual paths very largely by the laws that controlled, for example, the way they managed their property and ruled their families; besides which, the common law of the period itself reveals a great deal about the period's frame of mind, and could have been most profitably used. There are, moreover, alternative or complementary analytical schemes to the one here adopted. A not less revealing approach would be to use the external, historical framework of thought and to examine men's reactions to the great questions of their age—Poverty, Pauperism, Free Trade, Church Establishments, Franchise Extension, the Sanatory Idea, Hellfire and so on—and establish their frame of mind on this earthy foundation.

Houghton's achievement is at any rate and by any standards a fine one, qualified only by the degree to which the use of other sources might be thought likely to have led to different conclusions; as to which, each man will have his own opinion. Indeed, there seems no prospect of any but the most dogmatic or the most ignorant coming to any *final* conclusions about the early Victorian or any other period's frame of mind. Yet the attempt to reach it is infinitely valuable. We may wish to shift Houghton's landmarks, but it is unlikely that the effort to shift them will leave our own quite where they were before.

Trinity Hall, Cambridge G. F. A. BEST

T. F. T. PLUCKNETT. *Early English Legal Literature.* (Cambridge Studies in English Legal History: Cambridge University Press. 1958. Pp. viii + 120. 18*s*. 6d.)

The six lectures printed here were delivered in Cambridge in commemoration of the centenary of Maitland's birth. They deal with the treatises on English law from the *Quadripartitus* and *Leges Henrici Primi*, through the great efforts at rationalization of 'Glanville' and Bracton, to the Year Books of the thirteenth century and beyond. At the same time, Professor Plucknett attaches his account of legal writing to a more fundamental change: that from a law which, in Bracton's hands, was 'Latin, Roman and clerical in tradition' to one which was French, insular and lay. This is a matter central to our constitutional as well as to our legal history; and Professor Plucknett, moving with his customary mastery of technicality and clarity of exposition over the law of England and the Continent, gives it proportion which it has never quite had since Sir Edward Coke and his common lawyers set their imprint on the history of the English law. Prefacing it all is an equally masterly account of Maitland's view of law and history; and it is perhaps salutary to be reminded of the latter's humility in face of the likelihood of error in writing institutional history of any sort. It is an attitude characteristic of this great man, and stands in striking contrast to the arrogance of those who display a strident sense of achievement in making a point against Maitland or Tawney or any other who has advanced the frontiers of historical understanding.

St. John's College, Cambridge EDWARD MILLER

R. J. MITCHELL and M. D. R. LEYS. *A History of London Life*. (Longmans, Green & Co. 1958. Pp. xii + 302. 25*s*.)

Attractively written, pleasantly produced, well documented and adequately illustrated, this book may fill a gap in the copious literature on London. It claims (p. 2) to be 'not a history of London .... but of the London people', limiting itself to 'the decent citizens of all classes—and the conditions in which they lived'. Drawing its materials 'from contemporary evidence of many kinds' and ranging in date from the earliest times to 1888 and in area from the city of London to its immediately surrounding villages, it has ample material.

The result is a medley of interesting facts, strung together by a narrative which flows easily and meanders often. Strongest in medieval times, when Fitz Stephen's enthusiasm can be supplemented from the calendars of the city corporation's records, it grows weaker as the centuries pass. The Reformation profoundly affected London's life, but the authors pass it by unnoticed, a fate it shares with goldsmith banking, West India fortunes and the role of the river and the port. The comments of foreign visitors cannot make good such gaps in essentials. By the nineteenth century the weight of material has broken the thread. Education, water supply, drains, disease, prisons and asylums suffer more than they gain from the cursory treatment which space compels. Yet as an introduction and sketch it is stimulating, and marred by comparatively few misprints and mistakes. True, the late W. F. Reddaway would never have claimed the book so often quoted (pp. 148 153), and Miss Jeffries Davis would have preferred a correct spelling of her name, but both would have applauded the authors' courage and zest.

University College, London T. F. REDDAWAY

KATHLEEN MAJOR (Ed.). *The Registrum Antiquissimum of the Cathedral Church of Lincoln*. Vol. VIII. (Lincoln Record Society Publications, 51. 1958. Pp. xxiii + 258.)

This volume is the first of three which will contain the charters of the chapter of Lincoln's property in the city of Lincoln. It contains about 200 documents, edited in accord with the high standards which make all who use these volumes Miss Major's debtors; it is equipped with full indexes of persons, places and subjects which greatly ease the path of the reader; and it includes a revised chronology of the thirteenth-century mayors and bailiffs of Lincoln based on new material from the Vicars' cartulary which was not available to Dr Hill when he published his *Medieval Lincoln.* The value of the charters themselves to the student of early urban history has already been demonstrated by Dr Hill. Particular mention may be made of a number of interesting leases and mortgages; of a copy of probate in the city court of a will devising real property; of a reduced rent offered for a period to a lessee on consideration that he would rebuild a ruined tenement; and of references to the custom of the city in relation to distraint, terms for the payment of rent, and the execution of wills. It is not without interest to find a Londoner buying property in Lincoln in the 1270's; while a scrutiny of the occupations of parties and witnesses to charters, where this information is given, leaves an impression of the prominence of the leather and provision trades, though tailors and merchants also occur reasonably frequently.

St. John's College, Cambridge EDWARD MILLER

T. WOODROOFFE. *The Enterprise of England.* (Faber. 1958. Pp. 301. 25*s.*)

This is a lively account of the Anglo-Spanish struggle in the Atlantic from 1562 to 1588. Touching briefly on Hawkins' trading voyages to the Caribbean in 1562–69, it follows the development of piracy and robbery out of the bitterness created by the fight at San Juan de Ulua, and shows the growth in competence of English seamen and their ships and the transference of their successes to European waters with the raid on Cadiz and the Armada campaign. The writer shows an awareness of the significance of economic factors—the effect, for example, of English depredations in the Caribbean on Philip II's credit with the European bankers on whom he depended. Nevertheless, reliance on a limited range of authorities leads to an over-estimation of the place of Spanish treasure in Philip's financial affairs, and the economic importance of the Netherlands in the economy of his dominions is not brought out at all.

University of Hull RALPH DAVIS

W. B. STEPHENS. *A Study of Industrial and Commercial Development, 1625–1688.* (University of Exeter. Pp. xxvi + 203. 30*s.*)

Even in the seventeenth century, London was not England. In this publication of the History of Exeter Research Group, Dr Stephens has made a detailed and valuable contribution to the industrial and commercial history of the provinces. Unlike Dr Hoskins in his study of Exeter between 1688 and 1800, he does not include the word 'People' in his title, but he has, nevertheless, a good deal to say about population, wages and social conditions in what a contemporary called, perhaps rather unkindly, 'the nastiest and noysommest city' in the land. Dr Stephens' main theme is an examination of all that was involved in the revolutionary changes by which Exeter ceased to be a city with most of its eggs—perhaps one should say its kersies—in the French basket, and became second only to London as a centre of the perpetuana serge trade. The Netherlands replaced France as Exeter's most important market, but there were other markets as well, both at home and abroad, and a much more varied economy in the post-Restoration years helped the city to avoid a repetition of its earlier disasters. The book bristles with useful tables and statistics and might have been softened a little with more personal details about these bold capitalists of Exeter who were equally adept at breaking a London monopoly or at keeping in their proper place the pretensions of Topsham.

University of Bristol PATRICK MCGRATH

H. CECIL PAWSON. *Robert Bakewell, Pioneer Livestock Breeder*. (Crosby Lockwood. 1957. Pp. xv + 200. 25*s*.)

Any study of eighteenth-century agriculture lays heavy emphasis on the contribution of a handful of improvers, notably Tull, Townshend, Bakewell and Coke. There would seem today, however, to be a case for a reassessment of the work of these undoubtedly brilliant men. The turnip and Townshend have in late years begun to part company; once upon a time he 'invented' it, then he 'popularized its use'. Today he is seen as one of many who urged its increased cultivation while it is known that the turnip was widely grown before his day.

As the doyen of livestock breeders and particularly as 'the founder of modern breeding practice' Bakewell has long been pre-eminent. Professor Pawson keeps him firmly on his pedestal. From time to time, though, he does permit the gentle explosion of a popular myth such as, 'Bakewell did not originate the idea of letting sires' or, 'It cannot be claimed that he was the first breeder to endeavour to bring about any measure of this much needed improvement'. This is a book which throws light on the activities and character of the enigmatic and cheery goliath. In it are also reproduced for the first time the many letters which he wrote to George Culley, his ex-pupil, and which occupy nearly half the pages. The author does not attempt to reassess Bakewell's standing and importance—he rather takes his position for granted and goes on from there. Indeed from the material available to him he could hardly have done more. At the end one is still tempted to ask if it was by accident that the Longhorn and improved Leicester were never destined to become great commercial successes. That Bakewell was a brillant breeder of stock and a great farmer cannot be called into question, but there is a danger that his shadow has, over the years, become so large that many an important contemporary has been engulfed by it. We must look forward at a future date to a comprehensive study of livestock breeding in the period. In the meantime Professor Pawson and his collaborator, Professor Cooper, have performed a service in presenting us with so much material about the man and his work.

Oxford J. W. Y. HIGGS

G. RATTRAY TAYLOR. *The Angel-Makers*. (Heinemann. 1958. Pp. xviii + 388. 42*s*.)

This is a more serious book than its silly title suggests. Its purpose is to trace and to explain in psychological terms the main changes in social behaviour and moral ideas in England between 1750 and 1850. Its value to historians is in its varied choice of illustrative materials, its occasional illuminating comparisons, and its partially successful attempt to show the unity among diverse aspects of morality and taste. It also demonstrates that psychology may draw attention to important factors in social change which historians have overlooked. But the weaknesses of the book make it a poor support for the large claims that the author and publishers make on this account. Its predominantly

Freudian psychology will not carry universal conviction, and in its weighing of evidence, its development of argument, and its sense of balance it falls below acceptable standards of historical research. Similar weight is given to unsupported second-hand statements from one source and to facts corroborated in many ways. Inferences, based mainly on theory, about what *may* have happened are used in the next stage of argument as though they were established facts about what *did* happen. And psychological factors are presented as overriding all other influences on historical change, not as something to be considered in conjunction with them; though the author, having written his whole book on this explicit and implicit assumption, inserts two sentences near the end which indicate that it is invalid. These faults are so pervasive that they are likely to prevent recognition of those elements in the work which are interesting and valuable.

University of Bristol W. Ashworth

Walter Hagenbuch. *Social Economics*. (London: Nisbet. 1958. Pp. xvi + 320. 12*s*. 6*d*.)

This book is designed as an elementary introduction to the relationship between economic theory and the study of the social system. It has chapters on housing, working conditions, unemployment, poverty and the social services, and with admirable clarity Mr Hagenbuch gives his views on questions arising under these headings. The material is handled with facility and the book will be an excellent beginning to this part of the subject. In the circumstances there are bound to be many quibbles, but only two are really serious; the author gives a view of Poor Law history which recent research has exploded (and the purpose seems doubtful here), and it ignores a great deal of material which throws doubt upon the uncritical use of official sources. (In a recent article, however, Mr Hagenbuch has changed his position.) In particular, the student will not find a great deal of guidance on the public social services, nor on their relationship to fiscal devices to bolster private provision; nor will he realise that the major problem to be analysed by a professional social economist is that of dependency, and that dependency tends to be endemic among children, old people, the sick, married women, widows and the unemployed.

Oxford J. Vaizey

ITALY

(Edited by C. Cipolla)

Roberto S. Lopez. *La prima crisi della Banca di Genova (1250–1259)*. (Milan: Università Luigi Bocconi. 1956. Pp. 195.)

Professor Robert Lopez has once more brought out a study based on his knowledge of the medieval Genoese notarial cartularies. *La prima crisi della Banca di Genova (1250–1259)* presents the record of the failure of four bankers from Piacenza and Nice who operated in Genoa in the middle of the thirteenth century. All the surviving notarial contracts which demonstrate their bankruptcy and the liquidation of their assets in 1256 and 1259 are here published for the first time. The author has also selected for publication other contracts to illustrate their banking activities. The historians of banks and exchanges should find this unique series of documents most useful, and others will be enlightened by the author's historical Introduction. Most attention is paid to the bank of Wilielmus Lecacorvus and Company, for which more documents have survived. The author does not present all its extant contracts since he is concerned primarily with bank failures. Wilielmus Lecacorvus, a member of an eminent Piacenzan family, did not hesitate in 1244–1259 to serve both the Piacenzan merchants and their government as well as the Genoese merchants. He at times acted for the powerful Fieschi family, of which Pope Innocent IV was a member. But the banking activities of Lecacorvus collapsed in 1259 and trustees were appointed to satisfy his creditors. Before the liquidation was complete, Lecacorvus himself died in confinement and his associates carried on the proceedings. The other published documents cover less completely the failure of the other banks. These early case-studies in bank failure constitute the heart of the book.

In the Introduction Professor Lopez also presents a survey of Genoese banking history up to the thirteenth century and relates his new material to other recent studies of late medieval banking practice in northern Italy. An exhaustive treatment is not attempted, the Introduction only attempts to clarify the documents for the reader. The most controversial part of the Introduction will be part VII, which analyzes the functions of the bank of Lecacorvus. This nine page study merits attention because most of the types of banking activity are illustrated by documents published for the first time. These examples show the development of instruments of credit in thirteenth-century Genoa. The author also suggests, but cannot prove, that through its connections with the Fieschi the bank of Lecacorvus was involved in the initiation of gold coinage at the Genoese mints. Students of monetary history will be more interested in the published document of 1253 awarding Lecacorvus the privilege of operating the mints in Savignone, on the Fieschi land on the Riviera. However, if the Genoese government permitted, these mints should issue silver coins only. This reader was intrigued with the author's attempt to explain the reasons for the banking crisis in Genoa. The author's earlier works on the Genoese economy, on the *arte della lana*, and on the gold coinage in Genoa have certainly provided a basis for these conclusions. He here repeats his thesis that the business cycle can be traced in the middle of the thirteenth century, and in this way he explains the prosperity and the fall of Lecacorvus and Company.

The preface suggests that this work is offered in memory of an incident in the early career of the Yale historian and in pleasant gratitude to Professor Armando Sapori. The Italian publisher has produced an attractive book complete with two appendices: 1) the lists of creditors of each bank, and 2) an index of names of places mentioned in the documents. Thanks should be given to everyone who made possible this trans-Atlantic cooperation. We would profit from other international projects.

Hunter College of the City of New York LOUISE R. BUENGER

GIUSEPPE LA MANTIA. *Codice diplomatico dei Re Aragonesi di Sicilia.* Vol. II, edited by A. De Stefano and F. Giunta. Series I, vol. XXIV of 'Documenti per servire alla Storia di Sicilia'. (Palermo: Società Siciliana per la Storia Patria. 1956. Pp. 340.)

Professors A. de Stefano and F. Giunta are to be highly praised for their publication of the documents, already collected by the late Professor G. La Mantia, relating to the two years 1291–1292. These were meant to have been published within the framework of the 'Codice diplomatico dei Re Aragonesi in Sicilia' which, according to the original intentions of its author, was intended to assemble together all the Sicilian-Aragonese documents of the period from 1282 to 1355, that is, up to the year when the diplomatic codex of Frederick IV, partially published by Professor G. Cosentino, began. Unfortunately, the encyclopedic work to which La Mantia dedicated himself, at the outset with great fervour, remains incomplete: in 1918 only the first, invaluable volume was published, containing the documents of the period 1282 to 1290.

A minute analysis of the documents printed in this second volume here would require a great amount of space. It is enough to say that, for the economic historian, the documents now printed, of equal value to those collected in the first volume of the 'Codice', offer a wealth of information about certain extremely interesting aspects of the economic life of the island in this period. Of particular importance are indications to be drawn about the grain commerce between the principal Sicilian ports and those of other Mediterranean countries; about the practice of usury; about the rates of exchange of the moneys in circulation both within the island and outside it; about the mechanism for the remittance of money and letters of credit from one place to another; about contracts of conveyance of goods and people; about the activities of tunnypickling centres; about the relations between the Crown and the bureaucracy; and about concessions of feudal privileges. This collection of sources is, in fact, indispensable to anyone proposing to study the economic and social life of Sicily at the end of the thirteenth century.

University of Parma ALDO DE MADDALENA

RENATO ZANGHERI (Ed.). *Le campagne emiliane nell'epoca moderna. Saggi e testimonianze.* (Milan: Feltrinelli. 1957. Pp. 503. Lire 3500.)

The Emilian people, because of the outstanding interest they show in political problems and because of the peculiar conditions which characterize the economic development of their region, are among the peoples of Italy who have most actively participated in the difficulties following the introduction of new forms of economic organization. The various aspects of these changes, particulary those which occurred particularly in the field of primary activities in the second half of the nineteenth century, are examined in the series of essays which Zangheri has collected together with praiseworthy care in the volume *Le campagne emiliane nell'epoca moderna.* As an introduction Dal Pane offers a sober description of the still too few researches into the history of Italian agriculture, illustrated by opportune remarks as to the criteria of enquiry, formulated by him in the course of his active participation in such studies.

The limits of this review do not allow an individual appraisal of each of the various contributions, but the reader can note the variety and importance of the arguments under discussion in following the titles of the essays, given here in their order of presentation: L. Dal Pane, Introduction to the study of the Emilian countryside; E. Sereni, Note for a history of agrarian geography in Emilia; A. Aramini, The distribution of landed property in the commune of Forlimpopoli from the end of the eighteenth century until the middle of the nineteenth century; M. Bartolotti, The Agrarian Society of Bologna from its foundation until 1850; R. Zangheri, Flour movements in the Bolognese; E. Dirani, The massacre of Monselice; A. Fabi, Notes on Romagnuol peasant poetry; S. Morini, The propaganda of C. Prampolini among the peasants of Reggia (1886–1900); M. A. Salvaco, Parliamentary repercussions of the agrarian struggles in Emilia; A. Caracciolo, 'Rural' type tendencies and ideologies in the beginnings of Emilian socialism; F. D'Attorre, The struggle for the improvement of the *partitanza* contracts in the Ravenna fields in 1901; S. Sozzi, The first agricultural syndical agitation in the Cesenate (1900–1903); S. Nardi, The *mezzadria* family in the commune of Ravenna; L. Arbizzani, Agrarian struggles in the province of Bologna in the period immediately following the First World War; N. Galassi, Fascism and anti-fascism in the Imolese countryside; A. Gianolio, The resistance movement in the Reggian countryside; G. C. Ferri, The Bolognese hired labourers in the period after the Second World War: the *bracciante* strike of 1947; L. Bergonzini, Concentrations of landed property in the province of Bologna; A. Bellettini, On some forms of organizations of the *braccianti* in the Ravennate; G. Caleffi, Considerations on the strike of the *braccianti* and agricultural hired labourers of Ferrara in 1954; F. Mancini, The documents of the Agrarian Society of Imola, deposited at the *Biblioteca comunale* of Imola.

University of Trieste DANIELE BELTRAMI

UGO TUCCI (Ed.). Foreward by GINO LUZZATTO. *Lettres d'un marchand vénitien: Andrea Berengo (1553–1556)*. (Paris: S.E.V.P.E.N. 1957. Pp. xii + 360. Fr. 3600.)

Ugo Tucci has acquitted himself with skill equal to enthusiasm, in the difficult task of publishing a first collection of 290 commercial letters sent from Aleppo, between the 8 October 1555 and the 26 August 1556, by the Venetian merchant Andrea Berengo. Despite the lacunae contained in the sources (three registers of minutes), the correspondence of Berengo permits the tracing of a suggestive picture of the activities of the Venetian operator. At least in the first few months of his residence at Aleppo, he set his sights too high for the modesty of the capital at his disposal, so that he was forced to carry out a far more limited turnover than he certainly hoped to reach. Nevertheless, although of no outstanding quantity, the commercial activities of Berengo, besides bringing to light the undoubted capacities and spirit of initiative of the Venetian subject, provide interesting evidence about technique and commercial usages, and the means and systems of transport and communication (both of goods and of information); they allow information to be drawn as to the monetary situation and the circulation of various currencies, and they give indications of the mentality, the psychology and even of the culture of a business man of modest importance in the second half of the sixteenth century.

To economic historians particularly concerned with the study of the decline of Mediterranean commerce, and especially that of Venice with the Levant countries in the middle of the sixteenth century, the interest of Berengo's letters is inevitably limited, given the brief period of time to which the letters refer. On the other hand, while refraining from more general and definite conclusions in expectation of the two further volumes to contain the missives of the last years of the century, it can already be stated—as Luzzatto notes in his lucid preface to Tucci's work—that the evidence provided by Berengo confirms the progressive decline of the Syrian markets in Mediterranean commerce. Moreover, Luzzatto himself sharply underlines the significance of Berengo's correspondence when related to another debated problem of the economic and social history of Venice in the sixteenth century: that of the transformation of the mentality and functions of the Venetian patriciate. As is known, many historians hold the theory that in the course of the sixteenth century the Venetian patricians slowly transferred their capital from the commercial to the landed sphere, increasingly investing their riches in the land and in large works of land improvement, while withdrawing from mercantile activities considered too risky. But the letters of Berengo indicate that, as soon as circumstances permitted, the Venetian patriciate had no aversion to investing large amounts of capital in commercial operations with prospects of high profits, although with risks anything but negligable. Even more: not a few patricians added industrial to their commercial activities, financing artisans and cottage-workers and commissioning their work.

Ugo Tucci's work stands worthily besides the other publications of the *Centre de Recherches Historiques*, which under the enlightened direction of Fernand Braudel aims at reconstructing the evolution of Italian economy in the period of Spanish domination: a period which up to a few years ago has been unjustly neglected by historians. Not the least merit of the scrupulous editor of Berengo's letters has been to enrich the volume with useful tables (lists and indexes of Berengo's correspondents, and of names of people, places and ships) and with an invaluable glossary which makes the consultation of the dispatches both quicker and more easy.

University of Parma ALDO DE MADDALENA

UNITED STATES OF AMERICA

(Edited by T. C. Cochran)

LEV E. DOBRIANSKY. *Veblenism: A New Critique.* (Washington, D. C.: Public Affairs Press. 1957. Pp. xii + 409. $6.00.)

BERNARD ROSENBERG. *The Values of Veblen.* (Washington, D. C.: Public Affairs Press. 1957. Pp. vii + 127. $2.50.)

These two books have one important feature in common. Both give a sympathetically critical appraisal of Veblen, not only of his doctrines but, also, of what he was like as a personality. Rosenberg characterizes Veblen as a 'marginal' man whose peculiar personal traits and cultural background alienated him from a civilization dominated by business ideals and values. According to Dobriansky Veblen possessed a 'deep-rooted peasant-like simplicity', a 'persevering conscience for communal welfare', and an 'admiration for individual self-reliance and productivity'.

In considering Veblen as a social theorist and analyst, the authors agree that his distinctive contribution was his 'institutional' approach to the study of society which called for the application of Darwinian evolutionary principles to economic and social processes. They also agree that while Veblen's methodology is devoid of metaphysics, the dispassionate objectivity insistently professed by him conceals ethical assumptions concerning the good and desirable in social arrangements. Rosenberg thinks that Veblen's freedom from metaphysics is one of his great virtues, and he describes Veblen as the 'champion of a phenomenological description of our dynamic society'. But in Dobriansky's view the structure of Veblen's thought is weak just because it was not constructed upon a metaphysical foundation. '[Veblen's] disguised moralism', he states, 'can never be permanently substituted for the moral certainty and the general certitudinal outlook that result from a sound metaphysics'. Veblen is thus classified by Dobriansky as a radical empiricist, and an anti-intellectualist who is to be linked with Renouvier, Hume, Dewey, and James, but not with Charles Peirce as Rosenberg is inclined to do.

Considerable attention is given by both authors to Veblen's famous dichotomy between business and industry. Veblen identified business with pecuniary acquisitiveness and the exploitation of the community's economic resources, and industry with mechanical efficiency and the community's material welfare. Rosenberg feels that this dichotomy accurately describes the nature of the capitalist economic system. But while Dobriansky does not underestimate the cultural significance of the machine technology, he holds that Veblen's antithesis between business and industry is a theoretical mirage. He is less inclined than Rosenberg to an uncritical acceptance of the idea of inevitable monopolism implicit in Veblen's writings. Nor does he accept completely Veblen's animadversions on the classical theoretical economics.

In my opinion Dobriansky's excellent dissection of Veblen's economic theories is marred by his insistence on judging things from the standpoint of scholastic metaphysics and Catholic social philosophy. He refers to the machine as an efficient agency toward man's more meaningful membership in the 'Mystical Body of Christ'. In refuting Veblen's conception of the Barbarian culture he gives an idyllic but undocumented account of medieval social relations and the Church's role in them. He believes that Veblen's doctrines lead to the idea of 'functional ownership', that this idea stems from medieval conceptions, and that it suggests a new form of entrepreneurship involving the participation of the workers in management.

In their treatment of Veblen, Dobriansky and Rosenberg substantiate Max Lerner's remark that Veblen has meant different things to the different people (including this reviewer) who have studied him.

University of Chicago ABRAM L. HARRIS

ARTHUR NUSSBAUM. *A History of the Dollar.* (New York University Press. 1957. Pp. viii + 308.)

To his German textbook in financial practice (Tubingen, 1921) and his *Money in the Law* (rev. ed. Brooklyn 1950), Mr Nussbaum has added this summary account of the currency—metallic, paper and other—devised by Americans for their convenience from colonial days to 1956. To the familiar story are added some rarely-noted points:—such as the peso origin of the dollar sign, Secretary Chase's use of his own likeness on greenbacks which Chief Justice Chase excoriated, and some comparisons with foreign experience. The narrative is based on congressional enactments, on numerous standard works in English and a few in French, German and Italian, on a few college textbooks and on a few outmoded volumes; the best mainstays among these sources are listed repetitively in the 39 pages of notes. Much new research in book and periodical form is unrepresented. Numismatists will appreciate descriptive details.

The author states that he has been so impressed by the ingenuity and spirit displayed in solving America's monetary problems that he aims to indicate the psychological, economic and political factors underlying the solutions. This, in large part, he fails to accomplish; he allots so much of his severely limited space to technical details that there is little room left for the broad and complex treatment of the factors, which in any case would require a longer book. Also, study of the best of the recent analyses of the Jackson period of the free-coinage developments, and of Anglo-American negotiations would perhaps enlarge his categories respecting the inflationists and silverites, would modify his enthusiasm for Cleveland, diminish his notion of British cooperation for the 1933 Economic Conference and give more weight to political factors and to other United States outlays in accounting for the effectiveness of the International Monetary Fund.

However, there are numerous valuable observations; for example, the demonstration of the weakness of Keynes' plan as compared with White's at Bretton Woods. Furthermore, the author so applies his knowledge that his volume can well serve as a usually-accurate and a highly convenient hand-book on monetary legislation.

University of Pennsylvania JEANNETTE P. NICHOLS

MARVIN MEYERS. *The Jacksonian Persuasion: Politics and Belief.* (Stanford: University Press. London: Oxford University Press. 1957. Pp. vi + 231. 40*s*.)

The textual significance of a book stands in direct proportion to the dimensions of its major theme. Any work of United States history that attempts an interpretative synthesis of the theories explaining Jacksonian democracy has importance within reach because of the widespread impact of popular political movements in Andrew Jackson's day and since. But a history that answers convincingly the questions 'What message did Jacksonian democracy carry to society, whom did it reach, what did it signify in the setting of the times?' merits recognition among students of modern American society as a triumph for historical understanding. No other study since de Tocqueville's *Democracy in America* contributes so much general insight as Dr Meyers' *The Jacksonian Persuasion.*

What was the Jacksonian persuasion? Oversimply stated the Jacksonian persuasion was a reaction against economic and social change when the time was already too late, while simultaneously it was a movement which helped to clear the track for 'the revolutionizing ways of acquisition, emulative consumption, promotion, and speculation'. President Jackson himself became its supreme symbol. He was 'Old Hickory—the *defender*' of republican innocence and simple yeoman values, and this image was coupled with popular acclaim for his St. George-like slaying of the 'monster' Bank of the United States as opening the way ahead to the unfettered pursuit of private economic interest. The Jacksonian persuasion was not a campaign to promote democracy; it was a primitive expression of an already democratic society in an age of expanding capitalism. The appeal of the Jacksonian spokesmen rested in their ability to link laissez faire capitalistic goals with the popularly cherished though semi-mythical virtues of the early Republic. 'Under the Jacksonian persuasion', writes Meyer, 'men could follow their desires, protest their injuries, affirm their innocence'. Furthermore, inasmuch as both major political groupings were responding to the popular currents swirling about them, the persuaded Jacksonians were not vastly different from their Whig Party opposition except in symbolic imagery and electoral success. 'But still they could not let their differences go', Meyer concludes. 'If only by the shading of a constitutional clause, a Whig must press his special concern for endless progress under democratic capitalism, stimulated by the state. A Jacksonian must insist that the changing world is full of terrors, and hint at least that once there was a better, even as he helps perfect the instruments of change'.

Bryn Mawr College ARTHUR P. DUDDEN

WALTER D. WYMAN and CLIFTON B. KROEBER (Eds.). *The Frontier in Perspective.* (Madison: University of Wisconsin Press. 1957. Pp. xx + 300. $5.50.)

These thirteen essays were prepared originally as lectures to be given at the University of Wisconsin in the summer of 1954 to celebrate the centennial of the arrival of Lyman Draper. They are concerned primarily with the accuracy of the Turner generalizations in relation to several frontiers, with the authors discussing various geographical areas and time periods. The result cannot be comprehensive, closely knit, and consistent, but it accomplishes its object very well. The reader examines China, Russia, the Roman Empire, Australia and other areas to test conclusions that normally are based almost exclusively on the experiences of the United States.

If a general conclusion from this book is warranted, it is that the Turner ideas are very fruitful when applied to various frontiers, but that they were never generally applicable, either in the United States or elsewhere. This sort of analysis really opens the way to a positive advance. If these writers are correct—and they are very competent scholars—then it becomes obvious that the way is clear for a new analysis of the methods and results of the frontier process, and that we can no longer lean confidently on the crutch of the Turner ideas.

Dartmouth College ROBERT E. RIEGEL

FRED A. SHANNON. *American Farmers' Movements.* (Princeton, New Jersey: D. Van Nostrand Company, Inc., An Anvil Original. 1957. Pp. 192. $1.25.)

This little paperback volume of less than 200 pages is evenly divided into two parts: the first, comprised of seven chapters of historical narrative and 98 pages, is distributed evenly, perhaps too evenly, between movements prior to and after the Civil War; and the second, comprising chiefly of twenty-five documents and a select bibliography, completes the account. In view of the aims of the editor and the publisher, and the general character of the reading audience toward which this book is aimed, one can hardly have expected the author to produce any new materials or to challenge any established thesis. The temptation, however, must have been great. Still one can question the author's implied definition of a farmers' movement, and the space allotted to each movement. Attention should have been devoted to some significant developments in the South during the late 1840's and 1850's, which L. C. Gray discusses in some detail in his monumental two-volume work on southern agriculture. If anything, greater space should have been devoted to the movements after, and less to the movements prior to, the Civil War.

The author must have laboured under pressure of time from the publishers, judging from the trivial typographical errors that have crept into the volume. But all in all, the general reader and the harrassed undergraduate will find this brief volume rewarding; and the bibliography should also serve as a good guide for additional reading.

University of California, Los Angeles THEODORE SALOUTOS

E. S. LEE and OTHERS. *Population Redistribution and Economic Growth: United States, 1870–1950.* Vol. I. *Methodological Considerations and Reference Tables.* (The American Philosophical Society. 1957. Pp. xix + 759. $5.00.)

This is the first of two volumes prepared at the University of Pennsylvania under the direction of Simon Kuznets and Dorothy Swaine Thomas. As the sub-title suggests, this volume is devoted to the raw material itself. After some introductory observations about the technical problems involved in the compilation of the data, there are some 600 pages of statistical tables. The first main group of tables (pp. 107–360) is concerned with inter-state and urban-rural migration, showing details by age, sex and race or colour. The second section (pp. 372–631) consists of estimates of the labour force, arranged to show, in total and by states, the occupational structure of the labour force, in detail for 1880 and 1900 and in summary for each census year. The third section (pp. 635–701) is devoted to estimates of manufacturing activity, in total and by states, showing the number of manufacturing establishments, the number of workers employed in them, the total salaries and wages paid by them, and assessing the value of output and of capital investment. A shorter final section (pp. 703–757) attempts to estimate state income, distinguishing between the sources of that income. The authors refrain at this stage from attempting any interpretation of their data; this presumably will be presented in the second volume. In the meantime there is enough valuable and painstakingly assembled material in this present volume to keep teams of economists, historians and statisticians in overfull employment for an indefinite period.

London School of Economics J. POTTER

MILTON HANDLER. *Antitrust in Perspective: The Complementary Roles of Rule and Discretion.* (New York: Columbia University Press. 1957. Pp. 151.)

Antitrust in Perspective consists of three lectures which Professor Milton Handler delivered at the University of Buffalo in 1956 under the auspices of the James McCormick Mitchell Lecture Fund. Handler, a discerning student of anti-trust law and policy, gives a succinct and critical account of the development of the rule of reason in interpreting the Sherman Act—a rule he regards as essential to its effective administration—and of the *per se* doctrine of 'quantitative substantiality' as the courts have sometimes applied it to exclusive dealing and to mergers in interpreting the Clayton Act—a doctrine he considers inconsistent with anti-trust objectives. Handler appropriately regrets the courts' lack of consistency in applying the rule of reason to combinations, but he fails to recognize that it has validated an industrial structure that the anti-trust law was designed to prevent.

University of Pennsylvania LOUIS B. SCHWARTZ

KENNETH O. BJORK. *West of the Great Divide: Norwegian Migration to the Pacific Coast, 1847–1893.* (Norwegian-American Historical Association, Northfield, Minnesota. 1958. Pp. viii + 671. $7.50.)

The story told by Professor Bjork in this scholarly volume may be quickly summarized: the handful of Norwegian immigrants lured to the West coast by the 1849 gold rush and the Mormon migrations showered the Scandinavian press of the middle west with thousands of letters which played the same role as the 'America letters' in the relationship of the Mississippi Valley and Europe. Attracted by the tales of rich land, ready markets, and balmy climate contained in these widely-read reports, Norwegians began shifting westward from Minnesota and the Dakotas as soon as the first transcontinental railroads made the move possible, although no major migration occurred until the period between 1888 and 1893. By the time this had run its course the pattern of settlement had been established, with a small business colony firmly entrenched in San Francisco, and major farming and fishing communities scattered about Puget Sound. The religious and social life in these transplanted Norways reflected both the force of tradition and the modifying influence of the new environment.

That the few thousand Norwegians who made this transition justify the ten years of labour and the 670 pages of compact text that Professor Bjork has lavished on them may be questioned. Beyond question, however, is the fact that his bulky book is of far greater importance than his limited subject matter would indicate. The thousands of 'emigrant letters' that he has read and summarized give a detailed and accurate picture of every phase of life in the Far West—from the California gold fields to the lumbering activities of the 1890's—that will be of value to every historian of the region. His writing is clear, his documentation thorough, and the format of the book attractive despite its bulk.

Northwestern University RAY ALLEN BILLINGTON

JOHN H. KRENKEL. *Illinois Internal Improvement 1818–1848.* (Cedar Rapids, Iowa: The Torch Press. 1958. Pp. 252. $4.00.)

In 1836 Illinois, then a frontier state with a population of less than 450,000, embarked upon a most ambitious programme of 'internal improvement'. Some 1,300 miles of railroad, a 102 mile canal and several turnpikes were undertaken by the state government, projects whose total cost was estimated at more than £22 millions. After twelve years and an expenditure of $14 millions, the state could boast only of having completed the canal and a mere 54 miles of unprofitable rail line. These largely unsuccessful efforts to create an 'improvements system' exhausted the treasury, and the fiscal irresponsibility of the politicos threw the state debt into default.

This, in barest outline, is the substance of Professor Krenkel's monograph. Treated in adequate fashion the Illinois episode could interest both students of economic development as well as those who confine their attention to local economic history. Unfortunately, Professor Krenkel has failed to satisfy the requirements of either group. He makes no attempt to analyze the impact of the investment expenditures upon the frontier economy, nor is he concerned with the role played by British capital. As a purely descriptive account of the Illinois experience this work is also deficient. Data relating to the length and estimated cost of the various projects are lacking. The reproduction of the contemporary map which purports to show the routes of the projected canal and railroads is barely legible. Finally, organizational weaknesses have resulted in considerable repetition.

New York University HARVEY H. SEGAL

MILTON DERBER and EDWIN YOUNG. *Labor and the New Deal.* (Madison: University of Wisconsin Press. 1957. Pp. 382. $6.00.)

Here is an uncluttered account, by a dozen participants and observers. The quarter-century since the commencement of the New Deal affords perspective which inevitably was lacking in earlier interpretations. Previous writers could and did give copious data, but the meaning was apt to remain conjectural.

This discussion at several points poses as a problem why labour was a special object of solicitude to President and Congress after the federal government decided to do something about the great depression. Those who reported nearer to the events, were in no doubt. Unemployment was the most manifest, ubiquitous affliction. The bonus march was fresh in memory; every community had the mute reproach of bread lines; home relief funds were exhausted as fast as collected; in their misery families took to the road, only to prove that the calamity was universal.

Business leaders, with precious few exceptions, offered no remedies for their own plight, or for the jobless. Labour leaders often were not inventive, but they continued to declare their concern for the masses of the people. Labour's was the chief appeal in a reformation that was moral before it was economic or political. The country had had enough of indirection, of trusting that business processes, self-acting or induced, would be restorative. Food must be put in men's mouths, clothes on their backs, tools in their hands. The New Deal became more sophisticated as it progressed, but it deserves to be remembered as an act of heart rather than of mind, an affirmation of rights more than a contrivance of means.

These authors estimate the institutional changes that resulted, describing in forthright fashion what the nation has realized from the Wagner Act, industrial unionism, Social Security and other protective legislation. Their non-technical treatment rouses the hope that the intelligent citizen may find this a new sort of civics. The contributions of Elizabeth Brandeis, Edwin E. Witte, and Selig Perlman, as would be expected, have a special maturity and authority.

This is a joint project of labour economists of the Universities of Wisconsin and Illinois. Many of the authors are sufficiently known to professional readers, but a few lines giving the experience and competence of each contributor would have been serviceable to the average person attracted to the volume.

Hofstra College BROADUS MITCHELL

ROBERT DAVID ENTERBERG. *The Changing Competitive Position of Department Stores in the United States by Merchandise Lines.* (Pittsburgh: University of Pittsburgh Press. 1957. Pp. xvi + 184.)

As is well known, department stores in the United States have suffered severely from the movement of their customers into far-flung suburbs. To meet the difficulties raised for them by this development they have had recourse to three principal sorts of action: cooperative efforts to rehabilitate the central shopping districts and the transportation agencies that feed into them, improvement of their own downtown facilities, and establishment of suburban branches.

Professor Enterberg in this study evaluates the effectiveness of what they have done by estimating changes over the years in the percentage of the country's retail trade done by the parent stores and their branches taken together. Using data from several different sources, he makes estimates covering 44 'lines' of merchandise for each of several selected years between 1929 and 1953. He finds considerable variation as among individual lines, but also that in the aggregate these stores have managed to hold their position volume-wise in the retailing of goods of 'department-store types'. They have lost ground in retailing as a whole, not because of falling back in their established trades, but because consumers have reduced the proportions of their incomes they spend for goods of the sorts department stores have traditionally handled.

Professor Enterberg concludes that these stores can recapture the proportion of total retail trade they once held only by breaking into the markets for goods they have not heretofore been able to merchandise successfully. He offers no suggestions as to how they can do this.

His book is, unfortunately, not very well written. His sentences often are vague. Sometimes they are ungrammatical. Nevertheless, he has made a meaningful addition to knowledge in his estimates of sales by type of merchandise and in the new light he throws upon the department store's competitive problems.

University of Pennsylvania REAVIS COX

RAYMOND C. MILLER. *Killowatts at Work: A History of the Detroit Edison Company.* (Detroit: Wayne State University Press. 1957. Pp. xvi + 467.)

Good business history is time-consuming and difficult to produce, but of great value to historians, economists, and business administrators. In this well-written and detailed volume the author, who is a member of the Department of History at Wayne State University, has given us a fine example. Furthermore it is important because although there have been many histories of railroads, the power companies, though hardly inferior in significance, have been but little studied, and their crucial role in American economic development has been but little appreciated. Mr Miller's work is unquestionably outstanding in this field.

The author has based his account largely on the records of the company, and hence it presents much that is fresh and new, both in fact and point of view, but he has also familiarized himself with the many government documents pertinent to his interest, many of which appeared because of public questions regarding the utility industry. Beyond these sources he has tapped those of banks and other financial institutions, and has endeavored to capture the oral tradition of the company by means of extensive interviews with its staff. The study indeed originated with the officers and directors of the company and had its financial support, but as is desirable in such situations, the financial arrangements were between the company and the university. Both company and author insist that this work is not 'official history', and that the author's treatment and conclusions are his own. This reviewer agrees that the writer has indeed maintained his objectivity, a difficult task for one who has worked for six years studying such an active organization as Detroit Edison. While the work can hardly be called antagonistic, it exhibits the critical approach of a competent scholar who fully accepts the economic system of his country and is interested in illuminating its historical development.

The subject is treated in remarkably well rounded fashion .The important elements of the environment all receive their due, among them the financial problems and practices of utilities, the rise of state regulation, the impact of federal regulation, the political interplay of companies and municipal governments, the holding company movement, rural electrification, electrical relations with Canada, and especially with the Ontario Hydro-Electric Commission, and finally the development of home and industrial uses of electric power. The concepts of the leading figures of the company, and especially of the great personage of its development years, Alexander Dow, are treated at length. But besides discussing great men there is much to be learned about the administration of the business. Thus one can consider the role played by the board, the accounting system, the development of the pricing policy, engineering decisions, methods of promoting the use of power, and the handling of public and labour relations. Most important of all, instead of approaching policy problems with prior judgements the writer goes far to place himself in the position of the responsible officers, and thus examines their problems, discusses the alternatives, goes down false leads with them, and analyzes their final decisions. The management was hardly soft, but it had a strong sense of responsibility to the public, its employees, and its stockholders, and a sense of the value of its work. Some idealists may therefore be dissatisfied, but others may enjoy a good account of the doings of well meaning and constructive entrepreneurs.

The writer also shows himself quite competent in dealing with such technical questions as rate structures, rate bases, technical integration, corporate organization, and the raising of capital through various types of securities. The account of the manoeuvres necessary to establish a workable service area is most illuminating.

For a number of years power companies in the United States have been in disfavour because of their monopoly position, the disclosures of unsavoury practices, the natural interest in the great federal water power projects, and the activities of the public power advocates. Nevertheless the United States is predominantly powered by large private companies such as Detroit Edison, and it is time that we had a competent history of one of these. This Dr Miller has provided.

Cornell University JOHN G. B. HUTCHINS

DAVID LOTH. *Swope of G.E.—The Story of Gerard Swope and General Electric in American Business.* (Simon and Schuster. 1958. Pp. 317. $5.00.)

This sympathetic but objective biography tells much about Swope the man but little about Swope the President of G.E. Swope the man was quite typical of the executives who managed great American business enterprises a generation or so after their establishment. He had the necessary talents—the total commitment to the job and company, the forceful drive, the passion for reliable data, the 'fondness for figures', and the precise and analytical way of thought. He differed in that he was more aware of the needs of his employees and the role his enterprise played in the larger society. More like the present generation in this respect, he was still not an organization man. At G.E., no team fashioned policy. Swope alone made the decisions.

How were these decisions reached? What was in these 'figure-filled, accurate reports'? How did that cool and analytical mind evaluate this information? Or to ask the most obvious of all, what were these decisions about? Such questions the biographer leaves largely unanswered. Even Swope's most important policy decision—the move into consumer durables— receives little attention. Did he make this move because of the potential profits in the appliance business or did he do it, as is usually claimed, just to expand the demand for apparatus by increasing the overall electrical load? Was Swope aware of the completely new problems in marketing, production and engineering that this decision required? If so, how did he then prepare to meet these problems? If he did prepare, why then was it twelve years, from 1922 until 1935, before the Company's appliance department was fully organized (pp. 144–46, 245)?

The answers to such questions would tell much more about Swope's business ability and activities than the biography now does. This lack undoubtedly results from the author's failure to read through Swope's business reports, memoranda and correspondence. These records, he points out, exist, and Harold Passer's excellent study of General Electric's early years in *The Electrical Manufacturers* indicates to what good use they might have been put.

Massachusetts Institute of Technology ALFRED CHANDLER

KENDALL BIRR. *Pioneering in Industrial Research. The Story of the General Electric Research Laboratory.* (Washington, D. C.: Public Affairs Press. 1957. Pp. vii + 203. $4.50.)

Few scientific subjects are of greater importance today than electronic research with all its implications, not only in its classic areas of lighting and power, but also in the newer fields of atomic energy and rocket motors and fuels. In all of these and in many more, GERL has been a trail blazer.

In his broad and comprehensive treatment, Dr Birr has done considerably more than trace the growth of this very old research organization, which boasts of more than five and a half decades of activity. He has also, to a considerable degree, summarized the story of industrial research in general, from its inception as a comparatively unimportant phase of industrial interest at the turn of the century to the giant of the mid-century; nearly 5,000 laboratories spend the greater part of eight billion dollars annually in carrying on 'virtually every imaginable scientific and technological operation'.

In eight compact and informing chapters, the author sketches adequately the roots of industrial research and the establishing of the General Electric Research organization; he follows this with a narrative of the strikingly successful career of GERL through World War I, the period of depression and World War II, ending with a summary of current research activities. Adequate treatment is given the work of such able scientists as C. P. Steinmetz, W. R. Whitney, Irving Langmuir and W. D. Coolidge. The inter-relationship of electronics with other fields such as metallurgy, chemistry and others is well-done. A good index and helpful notes on sources round out an exceptionally informative little volume.

Queens College, New York City COURTNEY R. HALL

MARTIN DEMING LEWIS. *Lumberman From Flint: The Michigan Career of Henry H. Crapo 1855–1869.* (Wayne State University Press, Detroit, Michigan. 1958. Pp. xi + 289.)

This excellent study of an unusual frontier entrepreneur is based upon the Crapo Manuscripts in the Michigan Historical Collections in the University of Michigan, particularly upon the large number of letters in which Crapo detailed to his son in New Bedford his daily problems, hopes and labours in the Michigan lumber industry. Henry H. Crapo had been successively school teacher, surveyor, town clerk and businessman in the old whaling town of New Bedford when in 1855 a speculative purchase of pinelands led him at the age of 51 to a new career in Michigan. There, he became a logger, sawmill operator, lumber distributor, railroad promoter and eventually a two-term governor of Michigan. Crapo served as the instrument through which Eastern capital, provided by silent and vocal New Bedford partners, was applied to the Michigan frontier. His success seems to have been based upon the increased demand of the Civil War years, control of enough tributary timberland to ensure the operation of an efficient sawmill, integrated production and distribution, capital sufficient to continue production and stockpile the product during periods of depressed prices, careful sorting and grading to maintain the quality of the product, and personal characteristics of vision, great drive, attention to detail, an immense capacity for work and skill in chaffering. Crapo's business and political career in Michigan is skilfully portrayed in a book that is a welcome addition to studies of the entrepreneur.

University of Minnesota RODNEY C. LOEHR

PERIODICAL LITERATURE

ALFRED H. CONRAD and JOHN R. MEYER. 'The Economics of Slavery in the Ante Bellum South', *Journal of Political Economy*, LXVI (April 1958),95–130. The authors set out 'to measure the profitability of southern slave operations in terms of modern capital theory'. By means of some simplifying assumptions, a few heroic estimates, and much ingenious and elaborate statistical computation, they conclude that slavery was not, contrary to accepted historical interpretation, 'collapsing of its own weight', but that it was a profitable and 'rational' economic pursuit. In a major contribution they demonstrate the existence of an active slave trade between the infertile lands of the coastal and border states (producers of slaves) and the fertile cotton lands of the lower Mississippi Valley (consumers of slaves).

RÉNÉ P. HIGONNET. 'Bank Deposits in the United Kingdom, 1870–1914', *Quarterly Journal of Economics*, LXXI (Aug. 1957), 329–367. Previous estimates of the trend of bank deposits in the U. K. prior to 1914 have a strong upward bias owing to incomplete reporting in earlier years. Laboriously compiling the estimates of the *Economist* from individual volumes from 1877 onward, Higonnet presents a vastly improved time series of these deposits. He then goes on to conclude that, contrary to much Keynesian analysis, a high correlation existed between fluctuations in bank deposits, gold production, prices and national income in the period under consideration, thus validating the quantity-theory approach.

HARWEY GOLDBERG, 'Jaurès and the Carmaux Strikes: The Coal Strike of 1892' and 'The Glass Strike of 1895', *American Journal of Economics and Sociology*, XVII (Jan., April, 1958), 167–178 and 307–319. Jaurès, an idealistic republican, had little direct knowledge of either socialism or the condition of the working classes until he took up the cause of the striking workers of Carmaux. Both strikes were primarily political; the first a moderate success, the second a failure. But both helped to bring the social question to public and parliamentary attention, strengthened solidarity among the workers and made Jaurès an outstanding leader of the socialist movement.

DANIEL LLOYD SPENCER, 'Japan's Pre-Perry Preparation for Economic Growth', *American Journal of Economics and Sociology*, XVII (Jan., 1958), 195–217. The author contends that far from the backward, feudal society that most Westerners conceive pre-Perry Japan to have been, it had already undergone a 'commercial revolution' as early as the seventeenth century, and had a capitalistic economy with developed credit instruments, the rudiments of the factory system (except mechanical power), and many other elements (including monopolistic features) which facilitated its rapid industrialization after the Meiji restoration. Unfortunately, he draws his evidence mainly from secondary sources in the English language. Moreover, the appendix showing Japan's foreign trade from 1648 to 1718 is highly suspect.

SIMON KUZNETS, 'Quantitative Aspects of the Economic Growth of Nations: III. Industrial Distribution of Income and Labor Force by States, United States, 1919–1921 to 1955', *Economic Development and Cultural Change*, VI, No. 4, Part II (July, 1958), 1–128. Professor Kuznets here continues his inquiries into the quantitative aspects of economic growth, earlier portions (published in the same journal, volume V, number 1 [October 1956] and supplement to volume V, number 4 [July 1957]) having dealt with levels and variability of rates of growth and with industrial distribution of national product and labour force by countries. The method employed includes both cross-sectional and time-series analysis. The results of the present study tend to confirm those of the previous study, which took nations as the accounting units, in spite of the obvious and important difference between the distribution of economic activities between nations, on the one hand, and between subdivisions of a given nation on the other. The chief virtue of the present study is that owing to the greater coverage, comparability, and reliability of the underlying statistical data, more precise and detailed comparisons can be made. The major conclusions—negative correlation between per capita income and proportion of labour force in agriculture, positive correlation with labour force in secondary industries, etc.—are not surprising; but the volume and precision of the statistical detail permit a much more exact statement of the nature of the relationships, and bring to light some lesser but important relationships that cruder data do not reveal. The chief drawback of this and the companion studies lies in reading, comprehending, and sorting out substantive issues from the massive technical discussions of the difficulties and significance of the measurements. It is to be hoped that in his final summary volume on the subject Professor Kuznets will segregate the latter into a technical appendix.

FRANK WHITSON FETTER, 'The Economic Articles in the *Quarterly Review* and Their Authors, 1809–52', *Journal of Political Economy*, LXVI (Feb. and April 1958), 47–64, 154–170. The *Quarterly Review*, founded by Tories in 1809 to counter the influence of the *Edinburgh Review*, published its articles and reviews anonymously, as did the latter. Professor Fetter, who has already identified the authors of the economic articles in the *Edinburgh Review* (*JPE*, LXI [1953], 232–259), finds that in general the authors in the *Quarterly Review* relied more on 'politics and emotion' in defense of the *status quo*, than on economic analysis in their writing on economic questions. The second part consists of a tabular listing of the articles and their authors, with identifying notes on the latter.

MARK BLAUG, 'The Classical Economists and the Factory Acts—A Re-examination', *Quarterly Journal of Economics*, LXXIII, (May 1958), 211–226. The question of state regulation of hours of labour for women and children brought forth various, conflicting, and sometimes self-contradicting views from the classical economists. Blaug reviews some of the relevant literature and comes to the rather abrupt conclusion that the economists really had nothing of value to say on the question because they lacked a theory of the firm. But one is permitted to doubt if that is a sufficient cause for their lack of unanimity and consistency.

University of Wisconsin RONDO E. CAMERON

In historical journals in the United States during 1957–1958, several articles employed a statistical treatment of historical sources in topics of local or regional history, but set their findings in a broader context. In ancient history, H. Boren, 'The Urban Side of the Gracchan Economic Crisis', *American Historical Review* LXIII (1957), 890–902, employed the findings of his numismatic research ('Numismatic Light on the Gracchan Crisis', *American Journal of Philology* LXXIX [1958,] 140–145) to emphasize heavy government outlays as a factor pulling population to Rome. The failure of Tiberius Gracchus' purely agrarian reforms and the relief given by his brother's programme of spending and currency devaluation are explained in this light. A similar use of sources is shown in two articles on medieval economic history: D. Herlihy, 'The Agrarian Revolution in Southern France and Italy, 801–1150', *Speculum* XXXIII (1958), 23–41, and B. Lyon, 'Medieval Real Estate Developments and Freedom', *American Historical Review* LXIII (1957), 47–61. In Herlihy's article, records of land transfers south of the Loire are analyzed statistically to show the increase in the 'fluidity' of holdings in the ninth and tenth centuries. This is taken to indicate population pressure, while the rise in the share of sales in total transfers during the eleventh century is used as evidence that a consolidation of holdings in ecclesiastical and lay estates was occurring, and this impression is confirmed by literary evidence. In Lyon's article, following the lead of Pirenne, examination of Flemish records shows that land reclamation in the 11th and 12th centuries produced the free agricultural commune outside the feudal system.

Similar use of a sample of local materials to illustrate a larger topic is evident in several articles on American subjects. A. Bogue, 'The Iowa Claim Clubs: Symbol and Substance', *Mississippi Valley Historical Review* XLV (1958), 231–253, by use of local records of three such clubs reassesses the squatters' associations and claims clubs, usually treated as symbols of frontier democracy, from the standpoint of land speculation. The same author in 'Pioneer Farmers and Innovation', *Iowa Journal of History* LVI (1958), 1–36, blends local histories, deed and mortgage registers and the manuscript rolls of the Federal Census to show how new farming practices were spread in Hamilton County, Iowa, between 1855 and 1890. In 'King Wheat in Southeastern Minnesota: A Case Study of Pioneer Agriculture', *Annals of the Association of American Geographers* XLVII (1957), 350–362, similar sources permit H. Johnson to show the variety of the land-use pattern in a specialized wheat region in the 1860's and 1870's.

Investigation of private and business archives yielded several contributions to the historical record. B. Reubens, 'Burr, Hamilton and the Manhattan Company', *Political Science Quarterly* LXXII (1957), 578–607 and LXXIII (1958), 100–125, uncovers Burr's subtle political manoeuvring in the incorporation of the 'water company' which quickly became the Manhattan Bank, and draws some conclusions regarding the effects of this manoeuvre on New York politics, incorporation and banking practices and water supply. P. Trescott, 'The Louisville and Portland Canal Company, 1825–1874', *Mississippi Valley Historical Review* XLIV (1958), 686–708, shows the problems in monopolization of an activity affected by the public interest in America. J. Silver, 'The Hardwood Producers Come of Age', *The Journal of Southern History* XXIII (1957), 427–453, employs interviews with 'old-timers' and files of trade publications to assemble a picture of the changing organization of the hardwood lumber industry through the Federal anti-trust prosecution of 1920 and its aftermath.

For broader syntheses of research, the article by R. Cameron, 'Economic Growth and Stagnation in France, 1815–1914', *Journal of Modern History* XXX (1958), 1–13, reflects the current concerns of many economic historians in the United States. It lays greatest emphasis on the slow rate of population growth, the relative scarcity of coal resources, and the unwise protectionist policy in accounting for what appears from national income estimates to be France's relatively slow rate of economic growth. Of similar breadth are several re-examinations of the Turner 'frontier hypothesis'. P. Coleman, 'The New Zealand Frontier and the Turner Thesis', *Pacific Historical Review* XXVII (1958), 221–237, examines New Zealand social history in these terms, and points out that the relative scarcity of free land did not impede the development of a society similar to the American in many ways. In the issue of *Agricultural History* for July 1958 (XXXII), three papers by G. Gressley, N. Simler, and G. Ostrander survey or reflect the state of opinion on some of Turner's insights; the *Montana Magazine of Western History* devoted an issue (Jan., 1958) to a discussion of the work of W. P. Webb and others on the Great Plains.

The publication of documentary materials continued in the historical journals. Three notable examples were the 'Bank War' manuscript of Roger P. Tawney edited by C. Swisher in the *Maryland Historical Magazine* LVIII (1958), 'The Letter Books of Thomas Rasberry 1758–1761' edited by L. Hawes in the *Georgia Historical Quarterly* (1958), and some letters between immigrants and their Midland relatives in the 1780's and 1790's, published by H. Schmidt in an article, 'Some Post-Revolutionary Views of American Agriculture in the English Midlands', *Agricultural History* XXXII (1958), 166–175.

University of North Carolina WILLIAM N. PARKER

GENERAL

LUDWIG VON MISES. *Theory and History.* (London: Jonathan Cape. 1957. Pp. ix + 384. 30*s.*)

KARL R. POPPER. *The Poverty of Historicism.* (London: Routledge & Kegan Paul. 1957. Pp. xiv + 166. 16*s.*)

Whether the method of the social sciences is basically the same as the method of natural science is the main question on which Popper and von Mises differ, and they agree on so many other issues that one wonders whether the difference matters. They agree especially in denouncing and dissecting. They tear Marxism to pieces and when they find pieces of it embedded in various reactionary or reformist doctrines they point to the vicious consequences. Von Mises is much more specific and sweeping in his defence of capitalism and of what he calls simply 'economists', and cheerfully takes on all comers from Christian reformers to econometricians. Popper gives special attention to the 'utopian' proposals for a planned society presented by Karl Mannheim. His attack on 'holistic' social engineering must have seemed especially to the point when his essays were first published in *Economica* in 1944 and 1945. Both Von Mises and Popper assail as 'historicism' the belief that the future as a whole is determined by past trends, that the study of history yields knowledge of laws of development, and these laws of development enable man to predict the future. Both assail this historicism as pernicious because it supports evil political programmes, of which Marxism is now the most dangerous, both point out the 'naive' nineteenth-century belief in which it originated, and both argue effectively that historicism as they have defined it is a faith which cannot find solid support in logic or experience. Their difference is that Popper believes he is contributing to the more effective demolition of historicism by showing that history is to be understood by the methods of the natural sciences, whereas Von Mises uses as demolition charges arguments that emphasize the contrast between natural sciences and 'sciences of human action'.

Von Mises' argument is in brief: (1) Human action can be explained only by ideas. It is determined by ideas in the sense that once we have understood the ideas involved we have the ultimate explanation; we cannot in turn explain the ideas by anything else, not by physiological or chemical conditions, and not altogether even by other ideas. More specifically, human action is a choice of means to realizing ends. Understanding the choices requires understanding the ends. In this sense the teleological method is correct in the sciences of human action. (2) Stones always react to the same stimuli in the same way, men do not. Natural sciences assume the operation of causal laws which state 'inevitable regularity in the concatenation and sequence of phenomena'. In regard to human action there is 'no such regularity in the conjunction of phenomena' (p. 9). Even statistical methods in physics reach results of an entirely different kind than statistical studies of human action, for the latter do not permit the conclusion: 'A 'produces' C in n% of all cases, D in m% of all cases, and so on' (p. 87); economic statistics do not conclude with a statement of the inevitable regularity in the proportion in which known patterns will occur. Statistical studies of human action are summaries of historical conditions which do not, in the absence of causal laws, permit prophecy of future action. New ideas appear and therefore new kinds of action. 'The fallacy inherent in predicting the course of history', Von Mises concludes, 'is that the prophets assume no ideas will ever possess the mind of men but those they themselves already know of' (p. 379).

With this conclusion, Popper is in entire agreement. He too hits the historicists where it should hurt most, accusing them of lack of imagination (pp. 129–130)—inability to imagine other trends than those which they see and therefore regard as the inevitable destiny of all mankind. And he supplies reinforcement by a clear, usable definition of the meaning of 'trend'. Few working historians can avoid speaking of trends but not many can give an exact statement of what they mean. Popper defines a trend as the recurrent or cumulative effect of certain conditions. The effects will continue as long as the 'conditions' continue. Whether the conditions will change is another question, and consequently the existence of a trend is no basis for prophecy.

Although agreeing that we cannot predict the future as a whole, Popper believes we can predict pieces of it and should do so in order to practice what he calls piecemeal social engineering. Here he in turn seems to restrain his imagination unduly. At least he says little about the pitfalls, he does not explore the many difficulties that would seem to arise in using the hypotheses that he offers as examples of sociological laws (p. 62). Being a historian, I wish he had dealt more with biology and less with physics, more with medicine and less with astronomy. He might then have been even more persuasive in regard to the fundamental unity of method and more reserved in regard to prediction. References to physics give an unrealistic quality to his argument, even if it is formally logically correct. He defends unity of method by saying (p.102) '. . . we can never be quite certain whether our laws are really universally valid, or whether they hold only for a certain period (perhaps in the period during which the universe expands) or only in a certain region (perhaps in a region of comparatively weak gravitational fields)'. We should not state such possible limitations of their validity in the formulation of the laws, he says, since both social and natural sciences 'should search for laws with an unlimited realm of validity'. There is a difference, Popper admits, in the tentativeness of the hypotheses or laws of natural sciences and social sciences but only a difference of degree. But is not the difference of degree of more consequence than the similarity? Which is it more important to keep in mind: (a) the historical experience which shows human qualities, men's aims and ideas, changing in time so that such regularities as have so far been observed may cease to recur, or (b) the logical possibility that the qualities of the physical universe are changing too, so that observed regularities may not recur? To avoid errors in analysis and action, the former will certainly be considered more important by most historians. It would seem to be more pertinent also for a 'social engineer', even one engaged in piecemeal engineering.

The Johns Hopkins University FREDERIC C. LANE

TORSTEN GÅRDLUND. *The Life of Knut Wicksell.* Translated from the Swedish by Nancy Adler. (Almqvist and Wiksell. 1958. Pp. 355. Sw. kr. 30.—.)

In this biography Professor Gårdlund is unpretentious and unobtrusive, providing us with an excellent guide to a fascinating personality. What a marvellous contrast the perverse and public Wicksell, revealing himself and his generation by a great deposit of highly personal material in the University of Lund, makes with the ultra-respectable Marshall, with his caveats and caution. Yet Wicksell, the Swedish Bradlaugh, and Marshall the prude, both contributed to the same neo-classical canon.

Wicksell was one of the most advanced of obsessives: throughout his adult life delivering pronunciatmientos on all manner of subjects, making himself a centre of public commotion and private agonies, the heavy price of which was shared by his family. Yet he produced some outstanding contributions to economic theory, combining a high order of abstraction with real observation. How was it possible to play the part both of obsessive and theorist, an almost unique feat in the history of economics? Wicksell was, in fact, saved from self-destruction by his very excesses. So frightened did all parties, both left and right, become of having anything to do with him, that he was isolated from effective political participation. It was in this situation that, at long last, he turned to systematic thought about economic theory, to the great benefit of that discipline, and to the enormous relief of wife and friends. It was the outrageous badness of his judgement as a practical politician that made him available as a theoretical economist.

But a second 'accident' was necessary. Wicksell, when he was driven from the platform to the study, found that economic theory, for all the criticism of contemporaries, did offer a framework and a basis useful to his cast of mind. Wicksell was no revolutionary in theory; he was an exponent and improver of the classical system. Wicksell was one of the first to enunciate the principle that the free market system not only allocated goods between consumers on the basis of marginal utility, but it also allocated productive factors between alternative uses according to their marginal contribution to the product. In monetary theory, too, he was an equilibrist, building his structure upon the idea that the cost of borrowing may be kept by institutional means at a level inappropriate to some inherent norm, the 'natural rate', which would just equate planned savings with the demand for capital and so cause excessive or deficient investment. For this great disturber of the social peace the great objective of monetary policy was to promote stable prices in order to avoid disturbance of the social mechanism. Yet he consistently and effectively resisted the view that free exchange was a universally preferable formula. With unequal incomes or unequal bargaining strength present, the state might well achieve a higher total welfare by manipulating price rather than by leaving it to the market.

Wicksell, in fact, by his own peculiar route, was one of the earliest arrivals at the neo-liberal solution, which is often also the neo-socialist solution. The bad effects of monopoly pricing were to be corrected, where necessary, through social ownership. The problem of equity was to be largely solved through redistributive taxation, especially upon inheritance. Instability was amenable to monetary policy, by appropriate manipulation of the rate of interest. The first two of these remedies were available to Wicksell, because he was not preoccupied, as Mill and the British liberals had so long been, with the need to nurture private capital in the interests of growth. The third was available to Wicksell because he himself had carried monetary theory in a new direction. The bankers were without any real guide to their actions as they varied the credit supply within very wide limits, for their traditional liquidity canons, though providing rules of safety for themselves, were incapable of maintaining stability. His interest theory was to be developed to put all this on a new basis.

Behind these three policy proposals lurked and loomed the question of population. This had been Wicksell's self-introduction to economics in his student days, and had been the source of most of the storms he had generated. Rational population behaviour through birth control was the essential prerequisite for all improvement, as generations of students at Lund were required to demonstrate in their essays. In fact, he could never be a revolutionary, for, like Malthus, he found the core of the economic problem to be a matter of individual behaviour.

The University of Glasgow S. G. CHECKLAND

JOHN T. NOONAN, JR. *The Scholastic Analysis of Usury.* (Harvard University Press. 1957. Pp. xii + 432. $9.00.)

No short notice can do justice to this admirably lucid account, by a lawyer, of the development of canon law on usury from 750 to 1836, and of the influences shaping its interpretation. Anyone who doubts the need of a new summary should begin with chapter XX, a critique of some of the standard works on the subject, for the divergencies of view there exposed could be due only to a variety of errors. Many of these, as the book shows, have arisen through failure to appreciate the lack of logical consistency within the medieval body of doctrine. This failure in turn makes it difficult to interpret correctly either the reasoning through which theoretical unification was finally achieved, or the relationship of theory, at any stage, to business procedures and practical morality. One unfairness should be noted, in imputing to Nelson the error of equating usury with interest. The attack on the Weber-Sumner theory of 'attenuation of love' does not however rest on this point. On the other hand, Father Dempsey, whose view of credit creation as usurious is criticized as not properly following from the authorities he dealt with, is allowed to have made a fresh contribution to scholastic theory.

University of Chicago SYLVIA L. THRUPP

HILDEGARD THIERFELDER (Ed.). *Rostock-Osloer Handelsbeziehungen im 16. Jahrhundert. Die Geschäftspapiere der Kaufleute Kron in Rostock und Bene in Oslo.* (Weimar: Verlag Hermann Böhlaus Nachfolger. 1958. Pp. xii + 256. DM. 13.20.)

There will be general pleasure at the resumed publication of the well-known *Abhandlungen zur Handels-und Sozialgeschichte*, of which this is the first volume in a new series. It contains the accounts and other papers of merchants at Rostock and Oslo who traded with each other during the years 1544–64. There is nothing very startling about their homely traffic: beer, hops, flour, bread, apples, honey, linen cloth and miscellaneous smallwares were shipped from Rostock and osmund iron, tar, skins, horses, butter and so forth from Oslo. The editress supplies full and scholarly elucidations that include a useful survey of kindred literature in German. The documents will interest historians of prices, business organization, book-keeping technique and Baltic trade in general, and take their place among the printed business records of the sixteenth century, from the Cely papers to the letters of the Hermite brothers.

St. Edmund Hall, Oxford G. D. RAMSAY

AULIS J. ALANEN. *Der Aussenhandel und die Schiffahrt Finnlands im 18. Jahrhundert.* (Helsinki. Annales Academiae Scientiarum Fennicae ser. B tom. 103. 1957. Pp. 495. 2,400 mk.)

Finland in the eighteenth century was a remote province of the Swedish monarchy, and its semi-colonial relation to Sweden recalls the Irish connexion with Great Britain. But Finland produced a commodity of exceptional international significance—tar. On the basis of the tar trade the Finnish economy matured, especially during the later eighteenth century, so that Dr Alanen can claim that the economic foundations of the subsequent political autonomy were then being laid. Finnish tar bore a higher reputation than that of Russia or South Carolina, its production was stimulated by the maritime wars, and it found a market not only in northern Europe but in the Mediterranean. It was primarily the tar trade that made possible the rise of a Finnish mercantile marine and a Finnish shipbuilding industry and further promoted the shipment of timber, though this was never more than a subsidiary export. The main Finnish import was salt, procured chiefly from Sardinia and Sicily, though also from Portugal. The geographical pattern of Finnish imports and exports by no means coincided, and a profitable shipping industry was made possible only by the development of a carrying trade which gave the Finns a proportionate share in the lively traffic of the Scandinavian nations in the Mediterranean from 1730 onwards. During the War of American Independence, Finnish ships were major purveyors of Russian iron, hemp and tallow to southern Europe. There remained in all this activity a continued dependence upon Sweden: most Finnish tar was marketed via Stockholm, the local shipowners in the Bothnian ports were for long dependent for capital and credit upon the great merchants of Stockholm, and they profited both from the shelter of the Swedish navigation act of 1724 and the network of Swedish consulates that was being extended all over Europe. The well-to-do class of independent merchants that eventually came into existence at the various Bothnian ports as far north as Oulu was Swedish—though this is not a point Dr Alanen is concerned to discuss.

There is much in his book to attract English readers. Finland absorbed next to no British products, but Finnish timber was being shipped throughout the century to Great Britain, and from 1776 to replace American supplies of tar the English had recourse to the Finns. For Finnish products the English market in the eighties eclipsed all others. Dr Alanen does not seek fully to elucidate how at the Hamburg clearing-house or elsewhere this very one-sided balance of trade was financially rectified. He has innumerable tit-bits to offer the British reader—the purchase of Finnish-built ships in the late seventies by Howard of Hull and other merchants, the chronic tendency of Finnish mariners to desert to English ships, where pay and conditions were better, or the way in which the Anglo-Russian treaty of 1734 enabled English merchants to become chief legitimate purveyors of Russian goods to Finland, to mention a few. It might be emphasised that *Der Aussenhandel Finnlands* will interest historians of the Mediterranean as well as those of the Baltic.

Dr Alanen, as becomes a disciple of the late E. F. Heckscher, scrupulously examines one by one the various branches of trade in his chosen field. He shares with other economic historians of repute an amiable weakness in his fondness for copious graphs and tables of figures based upon customs accounts, percentages being worked out to the first decimal. Since Finland in the eighteenth century offered every opportunity to the smuggler by both land and sea and indeed a contemporary estimate quoted by Dr Alanen has it that as much entered the country clandestinely as through the customs, the value of these 'statistics' is mixed, though they afford useful illustrations of, for instance, the comparative importance of the chief Bothnian harbours or of the foreign markets. Dr Alanen has tapped a wide variety of sources and consulted archives in not only Finland and Sweden but also Denmark, Germany, Holland and elsewhere. He did not however visit this country, and despite the importance of the British market for his subject he has neglected—doubtless for reasons beyond his control—British sources of information. His seven-page bibliography includes only one book published in England, and it is over a century and a half old. The name of T. S. Ashton is represented by one small volume happily translated into Swedish, while those of R. G. Albion and D. K. Reading do not occur at all. It is sad to reflect that in an age of increasing personal contacts between historians the book barrier should remain so insurmountable. Finally, although this is a valuable work of reference likely to be consulted for a long time to come, there is alas no index.

St. Edmund Hall, Oxford G. D. Ramsay

Agronomisch-Historische Bijdragen. Vol. IV. (Wageningen: H. Veenman & Zonen. 1958. Pp. 208.)

In Vol. IV of the *Agronomisch-Historische Bijdragen* two studies by members of the staff of the Agricultural College at Wageningen are printed, both of which have grown out of seminar talks for the *Studiekring voor de geschiedenis van de landbouw*, the 'study-circle' responsible for the publication of the series. Both studies are fascinating in that they provide facts and figures and case-studies where few exist and where fewer still have been submitted to investigation. The first, by J. W. Dewez, *De Landbouw in Brabants Westhoek in het midden van de achttiende eeuw*, deals with the land round Klundert, in the possession of the Nassau family for centuries and owned by the state, where a wealth of documentary material in the form of reports and correspondence from and to successive bailiffs has survived. From this material the author, who himself was concerned with the administration of the estate in the 1930's, has particularly investigated the decade 1730 to 1740. He has reconstructed the working of the estate: the size of the farms, the proportion of cultivated land and pasture, the types of crops, the numbers of horses and cattle; he has set out the results achieved: the size of the harvests, the price paid for produce; and his study is embellished by clear graphs and by maps, both modern and contemporary, of the area under examination. The second study, by B. H. Slicher van Bath, *Een Fries landbouwbedrijf in de tweede helft van de zestiende eeuw*, is based on one account-book, kept from 1563 to 1573 by Rienck Hemmema, a farmer of good family (see the genealogical table, p. 175) with the habits and the standards of a country gentleman. The account-book, edited with an index and a glossarium by P. Gerbenzon, is printed as an appendix to the study, pp. 137–208. From the accounts the author has attempted to deduce various facts which are not known, e.g. the size of Hemmema's farm, and on the basis of the information on farm income and outgoings and household expenses he has set up a balance-sheet for the decade. He has also, in a separate article, 'Robert Loder en Rienck Hemmema' (*t Beaken*, XX, nr. 1/2/3, 1958) compared the agricultural methods and problems of Hemmema with his slightly later English counter-part, using for the comparison G. E. Fussell, *Robert Loder's farm accounts, 1610–1620* (Royal Historical Society, Camden Third Series, vol. LIII, 1936). He agrees with Fussell that heavy manuring is one main reason for Loder's success with his crops (as it was in Hemmema's case also); but he is less willing than Fussell to regard Loder as an early seventeenth century conscious 'improver' of agricultural techniques, arguing that both Hemmema and Loder were typical farmers of their time who were helped by living in densely populated districts, where their transport-costs were low, at a time of high prices.

London School of Economics R. M. Hatton

George T. Matthews. *The royal general farms in eighteenth-century France.* (New York: Columbia University Press. 1958. Pp. xii + 318. $5.50.)

Possibly the only effort more difficult than trying to reform the Augean stables of eighteenth-century French finance is that involved in trying to understand them, then or now. In his remarkable book Dr Matthews has tackled the most difficult of all the subjects in this field, the relationships of the French tax-farmers to the financial structure of the monarchy. Here is a clear account, though necessarily complex, of just what the *gabelles*, *traites*, and *aides* were; and the introductory and concluding chapters, concerned with explaining the functions of the chief tax-farming organization and its evolution to 1791, are readable enough to render unnecessary Dr Matthews' apology for the dryness of his subject.

Here, also, is a thesis of fundamental importance for French economic history—that the tax-farming system was itself a basic cause of the financial crisis that precipitated the Revolution. Not that the farmers pocketed too much of the national revenues—though this also was a factor. But the farmers became the chief suppliers of short and medium-term credit to the crown through their advances in anticipation of tax yields and their absorption of the certificates of indebtedness the crown issued in payment for its current expenses. The grip of the jealously exclusive tax-farmers on the national debt—extremely profitable to them—became a wall between the king and the newly rich merchants and manufacturers, who were kept from contributing adequately to the rising credit needs of the treasury. We all know that finances was the Achilles' heel of the old regime; this work goes far towards explaining why.

University of Pennsylvania MARTIN WOLFE

STANLEY J. STEIN. *Vassouras. A Brazilian Coffee County, 1850–1900.* (Harvard Historical Studies, 69. Cambridge: Harvard University Press. 1957. Pp. xv + 316, $7.00.)

The endless cycles, the 'booms' and 'busts' which have marked Brazilian economic history, are well known to the student of Latin America. The 'sugar cycle' in the Caribbean was perhaps more disastrous than any other single such cycle in Brazil or in the United States, where there was always new land to be thrown open to *Raubbau.* But in all such cases, the lands and the sub-society of the erstwhile 'boom area' are left in tragic decay. Stein traces the rise and fall of the coffee economy and its subculture in a single county in the Parahyba Valley of south-central Brazil, and does a masterful job. Its beauty lies in its being a *local* history; economic change is set in a full and illuminating cultural background, and we are allowed to understand what happens in one place, because of internal and external changes over which local people have only limited control. The Parahyba Valley was for fifty years the greatest coffee-producing region in the world; uneconomic methods and the waste involved in slave labour bled the richness of the area, however, and by the 1880's virgin lands north and west of São Paulo has gained full ascendancy over the Parahyba. Stein quotes the Brazilian writer who visited the area after its eclipse and wrote: 'There, everything was, nothing is. Even the verbs are not conjugated in the present. Everything is past tense'. The theme is an old one in New World large-scale agriculture, but Stein's narration of it once again is evocative. Discussion of the planter-slave relationship; of the ameliorative function of the godparental institution; of the patterns of living of slave and freeman; of religion and the African elements built into it; all these subjects are treated richly and as fully as the records must have allowed. Nor did Stein miss his opportunities to do living history; many former slaves and their descendants were used as informants. This is good history: good economic history and good culture history. The reviewer, an anthropologist, looks forward to more of the same by the author.

Yale University SIDNEY W. MINTZ

STANLEY J. STEIN. *The Brazilian Cotton Manufacture: Textile Enterprise in an Underdeveloped Area, 1850–1950.* (Harvard University Press. 1957. Pp. xii + 273. $5.00.)

Mr Stein's study of Brazilian cotton manufacturing is concerned mainly with the entrepreneurs who fashioned and developed the industry. In particular, he is preoccupied with the relations between these industrialists and the Brazilian government, and he reports extensively on what the cotton manufacturers had to say about such questions of national policy as tariffs, the importation of machinery, and the encouragement of textile exports. Issues and views changed, as one would expect, as the industry passed through a formative period prior to 1890, enjoyed a phase of buoyant expansion from 1890 to 1929, and then went on to experience the effects of depression, war, and postwar readjustment.

Other aspects of the industry are not neglected, but they are treated sparingly and almost casually. Questions relating to sources of capital, the nature of business organization, the mobilization and training of labour, and the distribution of output are not pursued systematically. I am sure that Mr Stein is right when he says in his preface that sources for dealing with such questions are hard to come by in Brazil. Nevertheless, it is regrettable that he did not attempt a more rounded study of this industrial development, even at the sacrifice of detail about the entrepreneurial theme he chose to emphasize.

University of California, Berkeley SANFORD A. MOSK

RICHARD M. MORSE. *From Community to Metropolis: A Biography of São Paulo, Brazil.* (University of Florida Press. 1958. Pp. xxiii + 341. $7.50.)

Mr Morse has brought a broad social science approach to this general history of São Paulo since about 1820. He has attempted to fuse the complex social, intellectual, economic, political, ecological, and cultural life of the city into a unified urban history. Mr Morse states he has had to draw with what he calls 'rather free eclecticism' from the multitude of sources at his disposal, and in the comparatively brief confines of this book, he has been forced to trace in rather general terms the great changes in the city from the primitive paternalistic community of 1820 to the complex modern city of today. This kind of treatment works best for the intellectual, cultural, and social aspects of the city, but is somewhat less satisfying for the economic, political, and geographic portions of the history where one would often like to see his broad syntheses illustrated with more material. Unfortunately the only map of the city included in the book gives but a general view of the city's spatial growth, with no details on the interior design of the city and how it changed during the period under discussion. Mr Morse is to be praised for his broad and imaginative approach to the history of São Paulo and in his handling of an extremely difficult task. His study should be regarded in many respects as pioneering in the Latin American field.

University of Kansas THOMAS M. GALE

A. W. CURRIE. *The Grand Trunk Railway of Canada.* (Toronto: University of Toronto Press. 1957. Pp. viii + 556.)

The history of the Grand Trunk Railway is a story of expansion. Projected in the belief that it would enjoy a monopoly of traffic in the St. Lawrence lowlands of Canada, the line originally extended from Montreal to Sarnia. In an effort to realize its objective of monopoly the Company absorbed fifty-one other companies in the Provinces of Quebec and Ontario, built its own line to Chicago, and obtained entrance to Portland in the State of Maine. In the first decade of the twentieth century the Company became over-ambitious. Caught up in the air of optimism prevailing in Canada at that time, its leaders sought to make it a genuine transcontinental road. In building to the Pacific it became bankrupt, was taken over by the Dominion Government at the end of World War I, and now forms a major part of the Canadian National Railways. Particularly fine is the author's discussion of the mistake of all concerned, including the Laurier Government, in failing to bring about an amalgamation of the Grand Trunk and Canadian Northern, which might have averted bankruptcy for both Companies, thereby obviating the necessity of Government ownership. From beginning to end, this book bears the stamp of authenticity. It is exceedingly well-done.

Brown University JAMES B. HEDGES

VERNON C. FOWKE. *The National Policy and the Wheat Economy.* (Toronto: University of Toronto Press. 1957. Pp. viii + 312. $5.50.)

This latest number in the 'Social Credit in Alberta Series' has a wider range than the title might indicate. A decade ago the author wrote a book on *Canadian Agricultural Policy* and the present volume gives a more intensive and up-to-date survey for the western provinces. From the dominance of wheat in that region, it has naturally been given the main emphasis. The treatment is pedestrian and repetitious; well over a quarter of the book is given to background of dominion economic and settlement policies. The Canadian experience with the most troublesome of agricultural commodities has followed in general that of other pioneering countries. Agrarian protest against 'monopolistic' buyers and carriers has been followed by cooperative ventures, pooling, attempted provincial regulation, and national control and marketing, involving ineffective United Kingdom and international agreements. As elsewhere, relative stability has not been found in any panacea for continued cropping but rather in diversification and industrialization.

For American experiences the writings of Solon Buck and John Hicks and especially the directly pertinent comparative study of Paul Sharp on *The Agrarian Revolt in Western Canada* should have been cited. Maps of production areas and transportation lines would have been enlightening.

Iowa State College EARLE D. ROSS

A. V. RAMAN RAO. *The Economic Development of Andhra Pradesh, 1766–1957.* (Popular Book Depot, Bombay. 1958. Pp. x + 384. Rs. 18.75.)

Regional studies of Indian economic history are few, and Dr Rao's work is a praiseworthy pioneering effort. From manuscript sources and official records he provides us with a great deal of interesting information about the Andhra regions of Madras from the eighteenth century until 'India became independent of the British bondage'. Unfortunately, most readers will soon become overwhelmed with this recital of detailed and often unconnected facts, even if they are knowledgeable enough to cope with ubiquitous and unexplained Indian words. The long-term trends of population, agricultural output and other economic variables are not indicated, perhaps because of lack of adequate statistical material. It is difficult to determine what was happening, for example to the handicraft industries, so often a bone of contention in Indian history. They were evidently nearly extinct by 1800 (p. 17), yet their products were still in great demand at the end of the nineteenth century (p. 106), and to-day 'the cottage industries survive and continue to flourish' (p. 315). Two or three pages are devoted to railways, surely less than their due.

The book seems to me like a jigsaw puzzle. Most of the pieces are there, but the author has failed to fit them together. The reader is not helped in this task by the absence of an index, an all too common defect of Indian publications. Despite these criticisms, the originality of the material and the abundant references to sources will make this work a valuable addition to the library of the specialist on Indian history.

University of Cambridge WILLIAM J. MACPHERSON

JEROME B. COHEN. *Japan's Postwar Economy*. (Bloomington, Indiana: University of Indiana Press. 1958. Pp. xvii + 262. $6.50.)

Dr Cohen, Professor of Economics at New York University is already known for his distinguished *Japan's Economy in War and Reconstruction* (University of Minnesota Press, 1949) and numerous articles on Japanese economic problems. His present volume is 'a brief analysis of the nature of, and factors responsible for, Japan's economic recovery and of the economic problems which now confront Japan'. In it he presents a wealth of statistical data which show that this recovery has been real and even 'amazing'. For example, the index of industrial production stood at an all-time high of 219 for the year 1956, from a base of 100 for the 1934–1936 period, and after reaching a low of 30.7 in 1946 (p. 47); inflation has been controlled at critical points; the flight of dollar reserves has been checked; and the increasing use of Japanese ships should help to improve the international trade balance. These together with the vitality and energy of the Japanese people are plus factors in the economy. But 'recovery' is precariously balanced because of certain minus factors: increasing population, too high production costs, too many people in agriculture and, most dangerous of all, the vulnerability of Japan to a world trade depression and/or the establishment of protectionist policies by the United States and other of her overseas customers.

Professor Cohen gives chief credit for recovery to Japan's conservative government leadership. The Socialists, he feels, could not have done as well. In particular he takes a dim view of the possibility of Japan's improving her economic position by opening trade with Communist China, which the Socialists advocate. However, he warns that the Socialists, with their vast though unreal promises, may come to power, especially in the event of a world trade recession, and that American inability to communicate with them may have very serious consequences for Japanese-American relations.

Professor Cohen's arguments are compelling and his statistics enlightening. However, on one or two points some criticism may be in order. Regarding the Japanese socialists, to whom he gives little or no credit for economic recovery while wishing they were more friendly to the United States (itself a suggestive paradox), it may be asked whether he fully appreciates the importance of their opposition role. They would seem to deserve some credit for preventing conservative backsliding into pre-war economic malpractices and for hitting hard on the issue of distribution, which is surely almost as important to a healthy economy as production, but concerning which the author has little to say.

A specific matter related to this general issue is that of military expenditures. The Socialists say too much is being spent on these. Professor Cohen puts the figure at only 10% of the total budget, compared with 71% in 1937 (p. 192). However, Finance Ministry figures (*Zusetsu Nihon no Zaisei*, 1958, pp. 337–338), considering military expenditures in the narrowest possible context, set them at Yen 146 billion out of a total budget of Yen 1,132 billion (12.9%) and, if soldiers, pensions are included, this rises to some 20%. For pre-war, Professor Hijikata Narumi, in his *Zaiseishi*, p. 226, gives 45.7% as the 1937 figure for military expenditures in the broadest sense. If these figures are correct, the Socialists again may have a point, especially in view of the precarious balance of Japan's 'recovery'.

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Capital Formation and Economic Growth. (A Conference of the Universities-National Bureau Committee for Economic Research: Princeton University Press. Princeton. 1955. $12.00.)

To what extent is capital an indispensable ingredient of economic growth: i.e. what is the normal relationship between investment and the increase in output that it makes possible, and how much does this relationship vary, for economies as a whole, in cases of exceptional ingenuity, entrepreneurial ability, access to raw materials, or good communications? In other words, how much simple abstinence from current consumption is necessary to obtain and sustain a growth in output, and how much can be done by the ingenious and enterprising exploitation of free or cheap resources?

What factors determine the efficiency with which the resources made available for investment are employed? Is this efficiency significantly affected by the size and form of the financial structure or is this essentially an epiphenomenon of no more than curiosity value? Are booms periods when increased quantity of investment is offset by serious deterioration in quality because of the inevitable falsity of the expectations and because of the lack of normal sanctions against error in times of abnormally high profitability? Or are they periods when the individual entrepreneurs are tempted into making longer strides forward than they would otherwise make—to the general advantage of the economy?

These and others like them are surely some of the important questions that must be asked in any discussion of the relationship between capital formation and economic growth. The importance of capital formation and its constituent processes can be fully appreciated only by reference to them. But in this volume, which records not only the papers but the discussion at the conference, they are not asked at all.

It might very well be claimed that at this early stage it is better to get away from the discussion of such fundamentals: attention to them may lead to vagueness and insubstantiality. In this case some much narrower topic should have been set for the conference; and even then if the contributions were to be of much use there would have to be some implicit awareness of fundamentals.

This is not to say that many of the papers in this volume are not worthwhile in themselves: Goldsmith 'wildcats' an interesting field and strikes oil; Aubrey, Cochran, Levy and Hoselitz have something to say about the motivation of investors that may interest and stimulate historians; Kuznets collects statistics of the proportions of national income saved at different times and places; and, in a short comment on another paper, Fellner outlines what promises to be an important approach to the theory of economic growth. But, despite the merits of the individual contributions, the conference as conference produced nothing of recorded value. In spite of the valiant attempts of Abramovitz in his editorial introduction to impose some unity, the volume obstinately remains a collection of papers.

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